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MAURITIUS

Annual Report

OF THE

Department of Agriculture

for the year 1968

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L. CARL ACHILLE, GOVERNMENT PRINTER,
PORT LOUIS, MAURITIUS
JULY 1971

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MINISTRY OF AGRICULTURE AND NATURAL RESOURCES,

(Agricultural Services),

Réduit,

7th December, 1970.

SIR,

I have the honour to submit the Annual Report of the Agricultural Services for the year 1968.

I have the honour to be,

Sir,

Your obedient Servant,

A. MULDER,
Chief Agricultural Officer.

THE HONOURABLE THE MINISTER OF
AGRICULTURE AND NATURAL RESOURCES,

Ministry of Agriculture and Natural Resources,

PORT LOUIS.

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Annual Report of the Department of Agriculture for the Year 1968

I. General Review

During 1968, there was no important change in policy, which continued to centre round the maximum utilization of land and water resources of Mauritius and its Dependencies.

2. The United Nations Development Programme Project (Land and Water Resources Survey) continued to make excellent progress. The Project has been extended to the middle of 1969 so that the practical application of the recommendations it is proposed to make may be tested. Alternative schemes for the irrigation of the Northern Plains have been studied; a Pilot Project to investigate the economics of crops and irrigation patterns for those schemes is being worked out.

3. Land suitable for agriculture, which has not been already developed, is extremely limited. A great part of this undeveloped land is situated in the uplands and is suited to Tea; the current 1966-70 Development Programme envisages the planting of 4,000 arpents at the rate of 1,000 arpents in each of the 4 years. In general, emphasis has been on increasing the productivity of land under cultivation as well as on the utilization of relatively small plots of undeveloped land outside the tea areas.

4. The Livestock Industry continued to receive much attention. The Production and Marketing of Milk and Meat is being closely investigated with a view to establishing the industry on a sound footing. The Poultry Industry has been assisted by substantial loans from the Development Bank and the country is now self-sufficient in eggs and nearing self-sufficiency in poultry meat.

5. Potato production was higher than the previous year reaching about 9,550 tons compared to 9,200 tons in the previous year. Because of storage difficulties in past years the storage space has been increased from 2,000 tons to 2,200 tons of which 1,000 tons to 1,200 tons are under refrigeration. Further, producers were allowed to sell their produce on the open market with the Agricultural Marketing Board guaranteeing to purchase at a predetermined price only up to three times the quantity of certified seed potatoes purchased from the Board. Onion and garlic are also controlled commodities. No onion or garlic was offered to the Board by local producers, but 608 tons of Rodrigues onion was purchased. Onion production excluding Rodrigues was about 1,500 tons, of which the equivalent of 525 tons were sold green. About 950 tons of onion was imported. Because of cyclones in Rodrigues. the lime was very poor and no Rodrigues lime was offered to the Board for sale.

6. Proper control over illegal fishing with undersized nets and explosives could not be exercised because of shortage of staff. The assistance of the Police and Police Riot Unit had to be sought in some instances. There has been a reduction in the use of explosives due to the severe control exercised on their possession. Catch figures for 1968 showed a drop compared with the 1967 catch, which can be attributed to the over-fishing of the lagoons. Comparison of the landings by main species shows that all stocks are being over-fished. The advantages of gill-nets compared with large seines were becoming generally accepted by fishermen in both Mauritius and Rodrigues; however, efforts to effect the substitution of gill-nets for large seine-nets must be intensified. The fishing vessel " Investigator " was completed on the 8th of October, 1968 and officially launched on the 24th October, 1968 by Lady Ramgoolam. The " Investigator " forms part of Mauritius Government counterpart contribution to the U.N.D.P./F.A.O. Fisheries Development Project aimed at finding new fishing methods and yield of potential of white fish on the banks of Mauritius and Seychelles and at training Mauritians in deep sea fishing. Dr. Henri Fougere left Mauritius in September after a stay of six years as Fisheries Adviser. Dr. Gonzales Manero arrived on the 26th of October, 1968 as the Marketing and Processing Consultant in the U.N.D.P./F.A.O. Fisheries Development Project.

7. In general, weather conditions were unfavourable to agriculture and to production. The first six months of the year were relatively dry, compared to normal, and, despite favourable conditions during the maturation period, the sugar yield per arpent was about 7 per cent below that of 1967 and cane yield was about 10 per cent below that of 1967. The tobacco crop was not affected by adverse climatic conditions except in a few cases. On tea the effect of the dry months was particularly severe on pruned bushes, which recovered very slowly, becoming normal only in late November. Rodrigues which had been hit by cyclone " Carmen " in late December, 1967 was hit again by cyclone " Henriette " in early January, 1968, destroying most of the crops sown in December, 1967. Thereafter followed an unusually wet period causing water-logging. Cyclone " Monique " hit Rodrigues at the end of March, 1968 devastating huts, crops, soils and roads.

8. Favourable conditions during the maturation period improved sugar content and partly compensated for the unfavourable climatic conditions during the vegetative phase. Production of sugar was 596,549 metric tons compared with 638,813 metric tons in 1967, a reduction of 42,264 metric tons. The yield of sugar per arpent was 3.14 tons of sugar compared with 3.33 metric tons in 1967.

9. Production of tea rose by 215,075 pounds, a 4.5 per cent increase on the 1967 production and amounted to 5,044,094 pounds compared with 4,829,019 pounds in the previous year. Of this production about 23 per cent was consumed locally; the remainder was exported mainly to South Africa and U.K. Exports to South Africa and U.K. in 1968 were 2,034,424 lbs and 1,690,318 lbs respectively compared with 1,079,680 lbs and 2,351,479 lbs respectively in 1967. The average price of Mauritian tea on the London Market was 3/5.76d compared with 3/8.40d in 1967, i.e. a slight decrease of 2.64d over the previous year.

10. A larger acreage of both Virginia flue-cured and Amarello air-cured was planted in 1968 as compared to the previous year, the increases representing about 25 per cent and 30 per cent respectively. The yield of Virginia flue-cured was lower than the previous year by about 15 per cent but the quality was better, the average price obtained being about 14 per cent higher. The yield of Amarello air-cured was about 11 per cent higher than in the previous year and the quality was also better, the average price obtained being about 13 per cent higher.

11. The production of aloe fibre fell to 1,318 metric tons compared to 1,602 metric tons in 1967 and 1,552 metric tons in 1966. This fibre was used with imported jute mainly for the manufacture of sacks at the Government Sack Factory. 1,548,141 sacks were produced compared to 1,341,305 sacks in 1967.

12. The total weight of locally produced beef from slaughter houses amounted to 1,187,426 lbs from animals produced in Mauritius and 225,030 lbs from Rodriguan animals imported into Mauritius compared with 868,948 lbs and 160,598 lbs respectively in 1967. 10,625 bullocks, imported from Madagasikara, were slaughtered compared with 11,873 bullocks in 1967. The importation of frozen beef and beef product was about the same as in 1967. The quantity of sheep and goats exported from Rodrigues to Mauritius was 1,139 and 1,956 heads respectively compared with 1,352 and 2,926 heads respectively the previous year. There has been a satisfactory increase in the local production of eggs and poultry.

13. Production of food crops and vegetables was lower than in the previous year, the reductions being mainly in the production of tomatoes creepers, groundnuts and maize. The production of potatoes was about 5 per cent higher than the previous year due no doubt to the activities of the Agricultural Marketing Board. The fluctuations in food crop production from year to year may be attributed to the absence of an organized marketing which would have ensured a reasonable price and a ready market. The estimated total production of food crops was 50,403 metric tons compared to 52,936 metric tons the previous year.

14. The Board of Agriculture, Fisheries and Natural Resources met only once and discussed the lease of various Crown Lands; it agreed that Crown Lands forming part of catchment areas be leased for shooting and fishing.

15. The Department of Agriculture was as from the 1st July 1968 restyled the Agricultural Services of the Ministry of Agriculture and Natural Resources and the posts of Director of Agriculture and Deputy Directors restyled Chief Agricultural Officer and Principal Agricultural Officers. Like the former Department of Agriculture, the Agricultural Services were organised into 12 Divisions staffed by 321 Officers including the Chief Agricultural Officer and two Principal Agricultural Officers who plan and carry out the experimental, development and extension work of the organization. At the close of the year, there were 87 vacancies, compared to 82 vacancies in 1967 and 78 vacancies in 1966. 16 part-time lecturers were employed by

the University of Mauritius in the School of Agriculture, the former College of Agriculture. Assistance was received from the Food and Agriculture Organisation of the United Nations in setting afoot a Development Project on Milk and Beef and another Project on Fisheries.

16. The work of the Department is broadly divided into:

(a) Applied research and development—to study and develop crops and livestock in the various environmental conditions obtaining in Mauritius and Rodrigues;

(b) Extension—to advise and assist farmers with a view to their obtaining the maximum productivity and economic returns from their farms.

17. The development of agricultural industries, other than sugar, and the provision of extension services to both small sugar-cane planters and others as well as livestock producers continued to be the main concern of the department.

18. The " Produce More Food " Campaign was extended to cover practically all the villages of the Island. Efforts were mainly directed towards the growing of fruit trees and of pulses. Production of foodcrops in cane interlines was increasing with sugar estates and large planters taking a larger part. Beans, maize, potato and tomatoes were again the main crops grown in virgin interlines. Ratoon interlines are also being planted with short cycle crops in many localities.

19. The College of Agriculture is now a part of the University of Mauritius. Diplomas in Agriculture and Sugar Technology will continue to be offered. The last batch of students to leave the College of Agriculture while under the administration of the Director of Agriculture was in April, 1968 when 10 students were awarded the Diploma in Agriculture, 6 students the Diploma in Sugar Technology, 6 students the Certificate in Cane Cultivation. Two laureateships were awarded: one to the best student in the agriculture stream to follow a course in Plant Physiology and the other to the best student in the Sugar Technology stream to follow a course in Chemical Engineering.

20. The Agricultural Services continued to provide the essential service to the Sugar Industry, namely the Sugar Millers and Planters Central Arbitration and Control Board, which regulates the sale and purchase of sugarcane as well as the Extension Services for small sugarcane planters, below 100 arpents. Some 19,954 tests were carried out on planters and miller/planters sugarcane at 22 factories. 12 protests were received in respect of the final assessment of sugar for the 1968 crop, 7 by Co-operative Credit Societies and 5 by planters. 6 protests were subsequently withdrawn, the Board maintaining its previous assessment in the other cases. A schedule of rates of transport of cane was issued by the Board showing the maximum rates claimable by millers for the transport of planters' cane from the outlying weighbridges to the factory. Two applications for changes of delimitations of factory areas were received by the Board and rejected. Twenty-five permits

were issued to middlemen. 15,770 contracts were in force covering some 28,500 planters. The number of planters who failed to enter into contracts before the 31st of May was 470 compared to 419 in 1967. The number of weighbridges in operation was 106 compared to 110 in 1967. All the weighbridges were tested prior to the crop and were found to be accurate. They were also tested during the crop and found correct. 1,687 surprise checks were carried out during the crop; in 11 cases the weighing was found incorrect. 6 weighers were prosecuted and a warning issued to the others.

21. The total acreage under sugarcane was 203,000 arpents of which 190,000 arpents were harvested, compared to 204,000 arpents and 191,700 arpents respectively in 1967. 596,549 metric tons of sugar were produced compared to 638,813 metric tons in 1967. 568,901 long tons of sugar were exported of which 380,000 long tons were sold at the negotiated price of £47-10shs per long ton which is the same as for 1967. 28,864 long tons of sugar were consumed locally. The United Kingdom was the largest customer taking 414,301 long tons, followed by Canada taking 139,200 long tons and the U.S.A. taking the remaining 15,400 long tons. The yield of sugar per arpent was 3.14 metric tons compared to 3.33 metric tons in 1967. 6 sugarcane varieties, namely M147/41, M93/48, M202/46, M442/51, M31/45 and B37172 accounted for 74 per cent of the crop. 132,743 metric tons of Molasses were produced of which 127,903 metric tons were exported. About 7,000 metric tons of Molasses were used in the manufacture of rum and various alcoholic products. The total production of alcohol reduced to 100°G.L. was about 1,344,000 litres of which 21,700 litres were exported.

22. The close liaison established between officers of the Department and those of the Mauritius Sugar Industry Research Institute was maintained. The research findings of the Institute were made available to the staff of the Department through a series of lectures given by the staff of the Institute during the year as well as by the individual contact between officers.

23. The Department continued to direct the activities of the three committees administering the Sugar Industry Rehabilitation Fund. The Sugar Planters Rehabilitation Fund continued to operate and manage the Mechanical Pool which is organised to clear and de-stone land planted under sugarcane. The Fund operated the Pointe-aux-Sables Cane Nursery, as well as subsidiary cane nurseries in factory areas, to provide planters with disease-free planting material and planting material of newly released varieties. Small planters have continued not to take advantage of the disease-free planting material available to them from subsidiary nurseries.

24. The Tea Industry was controlled by the Tea Control Board, which held regular meetings throughout the year. The Board determined the minimum price to be paid for green leaf by the factories. The Board was also concerned with reviewing the existing regulations and the Ordinance as well as establishing quotas for sale on the local market of teas of the various manufacturers. The compilation and issue of quarterly and annual statistical reviews were continued.

25. Eight factories were in operation during 1968 although none of them was working at full capacity.

26. As at the 30th June, 1968, the area planted to tea totalled 8,072.7 arpents, an increase of about 20 per cent on the previous year. Plantations at full maturity comprised 3,150 arpents, i.e. about 39 per cent of the total area under tea. The eight tea factories produced 2,196,424 kgs. (=4,842,649 lbs.) of made tea, an increase of 1 per cent over the previous year. Of this, 76.2 per cent was exported.

27. As a result of setbacks from the 1960 and subsequent cyclones, the first Tea Development Project which commenced in 1956 and was designed to develop 3,000 arpents of tea was extended on several occasions and the final clearings were completed late in 1966. The total area planted was 2,506 acres of Crown Land leased to Project planters and 289 acres of Crown Land developed by Government and leased to smallholders.

28. The second Tea Development Scheme, which commenced in 1962 envisaged the planting of 500 acres of Crown Land per annum by Government for distribution, when established, as smallholdings of about 4 acres each. The current 1966-70 Development Programme envisages the planting of 4,000 acres at the rate of 1,000 acres in each of the four years.

29. Four-acre small holdings were found to be too large in the case of a large number of smallholders, who were unable to maintain their holding in a satisfactory condition. It has consequently been decided that small holdings will in future be of 2 acres each and that existing 4-acre holdings that were not being properly maintained would be subdivided into 2-acre plots. Smallholders are assisted by the Co-operative Department in arrangements for short term loans for the purchase of fertiliser and so on.

30. About 43,600 lbs. of seed, enough to plant 1,000 acres were collected from the tea seed gardens. Only 175 lbs. of seeds from Central Africa were imported compared to 33,860 lbs. in the previous year,

31. The rainfall at Wooton Tea Experiment Station was 116.10 inches compared to the average of 145.06 inches for the eighteen previous years.

32. The control of the Tobacco Industry is vested in the Tobacco Board which purchases, processes and stores all leaf produced at the same time that it provides an extension service to tobacco producers. Research services are provided by the technical staff of the Ministry of Agriculture at the Richelieu and Pamplemousses Experiment Stations. These Stations are also responsible for the production of seeds of all commercial varieties, of which stock is held for two years' usings as an insurance against natural disasters. The acreages under Virginia and Amarello varieties were 505 and 448 arpents respectively compared to 413 and 344 arpents respectively in 1967.

33. The trend towards an increased consumption of the cheaper air-cured Amarello tobacco was maintained during the year. 727 metric tons of tobacco of all types was produced from 953 arpents compared with 619 metric tons from 757 arpents in 1967. Usings of domestic leaf by both manufacturers increased slightly to 533 metric tons compared to 525 tons last year. A new company, the Consolidated Tobacco Company Limited, purchased 20 tons out of the total of 588 metric tons purchased by all three manufacturers for use in 1970 when the Company proposes to commence operation. 43 metric tons of tobacco was imported in 1968 representing 7.6 per cent of total usings compared to 52 metric tons representing 9 per cent of total usings in 1967.

34. The Mauritius Hemp Producers' Syndicate continued to control the marketing of aloe fibre, which is processed into sacks by the Government Sack Factory for use in the bagging of local sugar, of flour purchased from France and Australia and for export. The number of fibre factories operating in 1968 was 8 i.e. the same as in 1967. These factories produced 1,319 metric tons of aloe fibre valued at Rs 1,598,312 compared to 1,602 metric tons and Rs 1,941,241 respectively in 1967. It was estimated that there were 1,840 arpents under aloe fibre of which 1,715 arpents of wild plantations. 669,442 pure aloe sacks were produced together with 872,299 sacks containing a mixture of aloe fibre and imported jute and 6,400 miscellaneous sacks. In addition filter press cloth, sacking cloth, yarn, ropes and other fabrics were manufactured. The operating loss of the factory was Rs 273,345 compared to Rs 196,198 in 1967.

35. There were 88 pigs of all ages of the Large White breed at Curepipe Livestock Breeding Station at the end of the year. 20 young boars and 16 gilts were sold to breeders and one boar and six gilts to Centre d'Elevage of Reunion Island.

36. At the end of the year the herd of goats at Palmar comprised 81 Anglo Nubians, 31 Jumna Pari, 1 British Alpines and 10 Rodriguans. Five bucks and two does of Jumna Pari and Jumna Pari crosses and ten bucks of Anglo Nubian and Anglo Nubian crosses were sold to breeders. Two pure bred Anglo Nubian bucks were sent to the Agricultural Training Farm in Rodrigues.

37. At the end of the year at the two Livestock Breeding Stations of Curepipe and Palmar there were 318 heads of cattle of the Creole breed and 185 heads of cattle of all ages of the Ongole and Boran breeds and their crosses. The Borans continued to thrive at Palmar and the Boran Ongole crosses seem more satisfactory than the Brahman Ongole crosses or the pure Borans. 31 animals, bulls and cows, of Brahman, Ongole and Boran breeds were sold for breeding. 38 steers of Ongole, Boran and Ongole Boran crosses were sold for draught purposes.

38. The Poultry Breeding Programme was continued and parent stocks of hybrid 7 and hybrid 4 were maintained for the production of layers as well as Cobb's parent stock and Ledbreast Pilch for the production of broilers. 110,636 chicks were hatched compared to 106,222 in 1967. They were sold as day-old, month-old and point-of-lay pullets for production of eggs, and as broiler chicks to commercial broiler producers; in addition day-old and month-old male chicks from laying stocks were sold for backyard production of poultry meat. 2,930 eggs were supplied to the Animal Health Laboratory for vaccine production and 1,128 eggs to the Artificial Insemination Laboratory for the preparation of semen for the field. 54,464 broiler chicks were supplied to the two established commercial broiler producers compared to 62,179 chicks supplied in 1967. 7,880 kilos of dressed chicken from trials and culls were sold to the public for consumption as compared to 5,169 kilos sold in the previous year.

39. The policy of importing high grade Friezian semen from Kenya was discontinued because of low conception rates. Semen from our own Friezian bulls is used in Moka district and elsewhere on demand; and semen from the Creole breed used for artificial insemination in the rest of the island. 13,047 calls for artificial insemination were received and 7,900 cows were inseminated with an overall conception rate of 58.9 per cent.

40. The production of feed at the Livestock Feed Factory showed a substantial increase compared to last year. 5,211 tons of feed were manufactured compared to 4,393 tons in 1967. Sixteen types of feed were offered for sale by the factory and 5,223 tons were sold compared to 3,990 tons in 1967.

41. The health of Livestock at the various experimental stations continued to be satisfactory as was the animal health picture of the Island. Field staff of the Veterinary Service Division attended to 3,203 cases of which 256 cases were concerned with infertility due to ovarian cysts.

42. The Animal Health Laboratory received a total of 2,096 specimens during the year for pathological, parasitological, bacteriological and haematological examinations. The work of the laboratory was concerned with the investigation of specimens submitted as well as with the preparation of vaccines, animal disease surveys and research. Vaccine production was restricted to inactivated Newcastle Disease Vaccine and Fowl Pox Vaccine of which 152,000 and 130,000 doses respectively were produced. In addition, 85,000 doses of live Newcastle Disease Vaccine were imported at regular intervals throughout the year from Madagascar.

43. The vaccination services for poultry, commenced in 1965, was continued. The demand for this service decreased again this year to 57,821 birds vaccinated compared to 96,879 birds vaccinated against Newcastle Disease and Fowl Pox in 1967. The vaccinators have been trained to give simple advice on management and hygiene to poultry farmers.

44. Live cattle imported from Madagascar for slaughter were tuberculin tested on arrival in Mauritius at the Roche Bois Quarantine Station. Unfortunately the test was discontinued in the middle of the year on the resignation of the Veterinary Officer. Of the 1,509 bullocks tested 106 gave a positive reaction, an incidence of 7.2 per cent. The reactors were slaughtered at Roche Bois Slaughter House.

45. To prevent the introduction of infectious/contagious disease into Mauritius, Animal Quarantine facilities were maintained at Roche Bois and Reduit. The importation of frozen beef and beef products in 1968 was about the same as in the previous year; there was a considerable reduction on the importation of frozen mutton and offals and a substantial increase in the importation of frozen goat meat and offals. There were further decreases in the importation of frozen poultry and once again there was no importation of eggs.

46. On Land Settlements, settlers' holding were in a satisfactory state of cultivation. Climatic conditions were unfavourable with a drought prevailing early and late in the year which adversely affected the yield of crops. The rent collection was again unsatisfactory with a steady accumulation of arrears and legal action was resorted to. At Terre Rouge Land Settlement an additional eleven arpents of land were ready for distribution to cultivators. At Petit Sable, a plot of 10 arpents of land was being opened up for parcelling out to prospective tenants. The Settlements of Terre Rouge, Vale, Belle Vue, Palmar, Petit Sable, Plaisance and Bée Manique were being farmed satisfactorily.

47. The Crop Extension Services were concerned mainly with increasing productivity per acre by improved crop husbandry to ensure better yields and higher incomes for farmers. Over 7,000 visits were paid to sugarcane and foodcrop growers. Special emphasis was made on the rational use of complete fertilisers for crops and the timely control of pests and diseases. Special attention was also devoted to encouraging rice farmers. The need for crop rotation, healthy planting material and crop protection was emphasized as well as the necessity for the replacement of prohibited sugarcane varieties by recommended ones.

48. Twenty-seven fertilizer demonstrations on sugarcane showed marked differences in favour of the use of complete fertilizers. 103 other demonstrations were laid down to show control measures on pests and diseases of crops. 67 meetings of small planters were convened during the year throughout the Island. The main subjects discussed at these meetings were the use of complete fertilizers and their time and method of application, proper land preparation, choice of varieties, seed selection, timely harvest, control of pests and diseases, choice of insecticides and fungicides and precautions needed in their use, the eradication of cane varieties susceptible to gummosis and their replacement by resistant varieties, maximum land utilisation and soil con-

servation and rice cultivation. Visual aids were extensively used. Again because of limited field staff, contacts with planters were mainly through more intensive group work. A series of lectures was delivered to leaders of rural youth clubs at Centre de Flacq, Rivière des Anguilles and Arsenal Centres on general aspects of agriculture with a view to providing them with basic training in agriculture.

49. Following heavy cyclonic rains early in the year vegetable seedlings were severely affected by diseases. The dry spell during the months of March and April was responsible for a reduction in the incidence of blight and bacterial wilt on potatoes but gave rise to a prolification of insect pests, namely red spiders, aphids, cutworms and tubermoths on potatoes, caterpillars on crucifers and fruits flies on creepers, tomato and fruits. The incidence of scales on sugarcane, particularly in the Petite Rivière and Pointe aux Sables regions, continues to be severe. With the completion of the gummosis survey on sugarcane, attention was paid to a survey of virgin cane plantations which will be continued over the next few years to assess varietal trend and replacement rate.

50. The inter-cropping of virgin sugarcane continue on small planters' lands and on sugar estates. A fair amount of food crops were also planted in inter-lines of ratoon canes in a number of localities.

51. The six demonstration plots run by the Extension Services continued to supply a wide range of food, fruit and forage crops. Demonstrations were carried out on varieties of potato in the first and second seasons and on varieties of rice and pulses. The sugarcane variety M 377/56, in high demand, was propagated. Fruit trees and other planting materials, including rice seeds were made available for sale to the public at all times. The demonstration methods of keeping livestock on small farms were continued. Anglo-Nubian goats and various breeds of rabbits were available for sale to breeders. The silo pits were not filled because of poor response from cow-keepers towards silage.

52. Development of Mare Choisy continued, farmers showing keen interest in rice growing. Farmers owing lands in the marshy areas of Mare d'Australia were encouraged to group in a Co-operative for the intensive exploitation of the area under rice. The District Council, the Ministry of Health and the Co-operative Department have been contacted to provide facilities regarding road maintenance and water control. About 1,723 kilos of rice seeds were sold to growers showing an interest in rice. 5,760 kilos of seed of the Red Creole onion variety were sold to growers through the Extension Services. School vegetable gardens have now disappeared through lack of funds for their maintenance; nevertheless, fruit trees and ornamentals have been supplied to practically all primary schools and necessary advice given regarding their maintenance. The poor institutions were visited regularly and given advice and vegetable seeds.

53. The "Produce More Food" campaign has now been extended to cover practically all villages in the Island. As in past years, efforts were mainly directed towards the growing of fruit trees. 1,463 fruit trees were delivered to villagers, in their respective villages, as well as planting materials of grasses, banana, sweet potato, cassava, pineapple and acacia.

54. To meet the imperious need of farmers for diversifying the agricultural economy and for more intensive production from the land Rural Youth Clubs were established the previous year and are flourishing. Close co-operation was maintained with the Youth Service Division of the Ministry of Education.

55. The estimated foodcrops production in Mauritius was 50,403 metric tons compared to 52,936 metric tons in the previous year. The area harvested was 9,224 arpents in 1968 compared to 9,788 arpents in 1967.

56. The silage demonstrations in villages were discontinued because of lack of interest by cowkeepers for feeding to their stock.

57. At the Curepipe Experiment Station the road system was further extended and improved. An additional 1½ acres of marshy land was reclaimed and planted under fodder. Trials with grasses and legumes were continued. Grapefruit variety Juddoo again produced a good number of quality fruits. Guava trees of various varieties gave heavy yields of fruits. Persimmon plants of introduced varieties continued to show unsatisfactory growth. Fertilizer spacing and variety trials with foodcrops viz. *Colocasia esculenta,* potatoes, sweet-potatoes and *Sechium edule,* were continued. Various vegetables were grown for seed production.

58. Various varieties of rice were experimented with to determine their suitability and cultural methods for the upland conditions of Mauritius. Results so far were encouraging.

59. Geese and ducks run in association with fresh water fish ponds continued to thrive.

60. Plaisance Experiment Station was extended by about five acres in 1967. During the year under review that area had been intensively cropped. A fertilizer trial on ginger showed significant response to Nitrogen and Phosphorus. Yields were high. The citrus trees yielded better than last year. Coconut plants of the Malayan Dwarf varieties continued to thrive. Ripe coconuts selected for seed were sold to the public as seedlings. The grape variety "Citronelle" grafted on different stocks continued to grow more vigorously than "Citronelle plants grown on their own roots, but yields were again disappointing. Some more litchi plants grown for the production of layers flowered and produced fruits. Various vegetables were planted for the production of seeds for sale from our nurseries. The mango orchard produced a large number of fruits most of which were sent to the nurseries of the Ministry for propagation. The Airport Section continued to supply good quality fodder for the Curepipe Livestock Breeding Centre.

61. At Reduit the citrus orchard of about 2½ acres continued to yield valuable information on varieties, fertilisation, pest and disease control. Juddoo grapefruit continued to yield heavily. Greening has reduced yields of many citrus plants. For propagation purposes bud-woods were taken only from seedlings of citrus varieties to avoid the spread of certain virus diseases. Heavy fruit drop occurred as a result of two cyclones. The varietal banana collection was maintained. The eight peach varieties grafted the previous year produced fruits which were, however, attacked by fruit flies. The sixteen avocado varieties produced some fruits. The twenty varieties of Cassava were maintained in collection plot. Fourteen varieties of groundnuts were planted for seed multiplication and observation. Introductions of grass and legume fodder species were continued.

62. At La Ferme the observation plots of various grasses and legumes were maintained. The established pangola plantations were damaged by fire on three occasions. Some 195 tons of fresh fodder were cut and removed by cowkeepers of villages in the vicinity.

63. At Palmar the Malayan Dwarf varieties of coconut were seriously attacked by rhinoceros beetles despite regular treatments with insecticides. The 70 acres of pangola grass on coral sand pastures were maintained. The fodder legume *Vigna marina* shows promise. Among grasses *Cenchrus ciliaris*, molopo strain is also promising. Observations on other grass and legume fodder species continue. Two new paddocks have been walled in with consequent improvement in the carrying capacity of the pasture.

64. At Barkly Experiment Station the new sales building is being utilised. The air conditioning unit has not yet been installed in the seed store. About 50,847 pounds of seeds were processed and about 30 acres of land were devoted to seed production. The station continued to be the centre of vegetable seed production and controlling the seed production programme of other stations. It was also the centre of propagation of fruit trees and ornamentals. The orchards were maintained in a satisfactory condition. Sales of seeds and plants amounted to Rs 58,680 compared to Rs 66,305 in the previous year. Citrus seeds of various varieties, received in 1967 for use as rootstock and for the supply of disease-free budwood, were raised as seedlings and in part budded with budwood from citrus varieties grown locally from seed. A fair number of coconut seedlings of the Malayan Dwarf and Pemba varieties were raised. The citronelle grape variety grafted on various local stocks continued to grow more satisfactorily than those grown on its own roots.

65. At Abercrombie Nursery, the grape variety Citronelle was growing well but produced only a small amount of fruits. The ten other grape varieties introduced in 1965 are growing well. The mango orchard consisting of a large number of varieties produced a good crop of fruits. Vegetable crops of various varieties were planted for seed production. Sale of plants to the public amounted to Rs 6,092.

66. It was estimated that about 168,000 persons visited the Royal Botanic Gardens during the year. The gardens were maintained satisfactorily and with the assistance of the Mauritius Herbarium, the identification and labelling of plants were continued. Plant propagation was again undertaken on a large scale for sale to the public from our nurseries. Part of the marshy areas of the garden had been converted to paddies for the introduction of and for trials with varieties of rice. Rhinoceros beetles continued to be a serious menace to the palm collection in the garden.

67. At Pamplemousses Experiment Station, tobacco varieties were grown as in the past for selection of seeds. Various foodcrops were also grown for seed production for sale from our nurseries.

68. The Bois Marchand and Arsenal grass plots continued to be of great assistance to cowkeepers in the surrounding villages during the dry months of the year. Cowkeepers were permitted to cut the grass from these plots on special permits.

69. At Pointe-aux-Piments, a fodder plot is being established on the same line as at Arsenal and Bois Marchand to provide fodder to cowkeepers in the area in times of fodder shortage.

70. At Richelieu Experiment Station, the overhead irrigation system working with natural head now covers the whole station. Unfortunately water-supply was cut off in the last few months of the year thus preventing the station to be fully cropped as per programme. Towards the end of the year a suitable tenant was found for the Model Farm and preliminary land cultivation was undertaken, but for lack of irrigation water work did not proceed very far.

71. The tobacco seed requirements of the country continued to be produced at Richelieu which, together with Pamplemousses Experiment Station, provided the research facilities for the tobacco industry. Fumigation with methyl bromide has become a standard practice for sterilizing seed beds. Permanent seed beds have now been established because with methyl bromide fumigation rotation of nursery seed beds can be dispensed with. N.C. 95 and Yellow Mammoth continued to be the most popular varieties with planters because of their high yield, good resistance to diseases and pests and ease of curing. Amarello remained the only popular air-cured variety. As a result of shortage of irrigation water at the beginning of the year and also towards the close of the year, the tobacco planting programme had to be considerably curtailed. It consisted only of plantations for seed production and breeding plots. The station continued to be the sole producer of tobacco seeds and at least two years' stocks of seeds are maintained against emergencies. All leaf produced at the station at Pamplemousses was sold to the Tobacco Board and realised about Rs 22,000.

72. The shortage of irrigation water prevented experiments on foodcrops to be carried out.

73. The citrus orchard was destroyed, as recommended by Dr. Moreira, to allow new plantations to be made with diseasefree imported material. The mango orchard gave a fair yield of crop which was all sent to Barkly Experiment Station for propagation. The litchi orchard flowered but did not set fruit.

74. The usual range of tobacco diseases was observed, namely *Alternaria cercospora,* bacterial wilt, virus diseases and others. Potato blight, though not very severe was prevalent in the wet localities, varieties King George and Up-to-date showing themselves very susceptible. Early blight was also severe on second season potato crops. Dithane M/45 was found significantly better for the control of potato late blight than some other fungicides tested. Rust was severe on maize crops particularly during the summer months. Bronzing and stripes symptoms on rice leaves were observed on variety Begami at Curepipe Experiment Station but the cause still remains unidentified. Grey leafspot and powdery mildew were the main disease of tomato. *Sclerotium* wilt caused some damage to groundnut plantations. Owing to dry weather conditions oinon plantations were generally free from plant diseases; blast and pink root rot occurred in some plantations. Mosaic seriously affected the local red variety of bean in most localities during the winter months. Leafspot and a blight disease of unknown cause were again widespread in ginger plantations. Powdery mildew was severe during the winter months in the north. Greening was widespread in many citrus plantations. The citrus propagation programmeconsists in importing disease-free material through the Quarantine for use subsequently for budding on resistant seedling stocks.

75. The Plant Pathology Division was responsible for the inspection of live plant and animal products at points of entry in the country and for the issue of phytosanitary certificates for export. 967 plant import permits were issued as well as 608 phytosanitary certificates for plants, flowers and fruits exported. 3,150 certificates of examination were issued for plant and animal products imported into the Island. 50 fumigation operations were carried out and 111 ships as well as 825 planes were met. The 2 Plant Quarantine greenhouses to receive introductions other than sugarcanes were maintained and a variety of economic and ornamental plants underwent quarantine. Among the most important plants introduced were 28 varieties of rice, two varieties of cotton, 2 varieties of tobacco, 2 varieties of grass and citrus bud-wood. The sugarcane Quarantine Greenhouse was operated as usual on behalf of the Technical Services by the Mauritius Sugar Research Institute.

76. In spite of staffing difficulties, including the absence of the Assistant Entomologist on 4 years' study leave, work on biological control, including the development of techniques for the mass breeding of predators, on the testing of new pesticides and the control of crop pests was continued. Biological control work was mainly concerned with stable flies, the bean fly and snails The coconut beetles, *Oryctes rhinoceros* was almost widespread, save for the Southern part of the Island. The spread of the pest had been found to be greatly facilitated by the spread of manure from infested sites.

77. Analysis of the raw materials, imported for the manufacture of livestock feeds, were carried out by the Chemistry Division, as well as analyses of the prepared feeds sold to the public. Analyses of fodder were continued. Analysis of scum was performed relative to its value as a fertiliser. Various oil seeds were analysed for their production of vegetable oil. Water for various uses was analysed. Soils from various areas were analysed to determine their fertility status, acidity, silica content and so on in connection with cane replanting, rice planting and tea cultivation. Fertilisers were analysed to detect possible adulteration.

78. The Engineering Division was responsible for the servicing, repair and maintenance of all departmental vehicles, tractors and machinery. At the Central Workshop some 750 vehicles, tractors, lawn mowers, sprayers, trailers and other agricultural machines were serviced and/or repaired. Miscellaneous equipments were made for various divisions. The division was also charged with the construction of buildings provided for in the Development Programme.

79. The Livestock Feed Factory sold 5,223 tons of livestock feed, manufactured from raw materials all imported except for molasses and a certain quantity of locally produced maize. Sixteen different kinds of livestock feed were offered for sale.

80. The enforcement of the Fisheries Regulations and the collection of fish landing statistics were continued. The flying squads continued to operate, although with a reduced staff, with a view to increasing the efficiency of enforcement of the regulations and preventing the dynamiting of fish. 200 contraventions were established, 66 in connection with illegal nets and 7 with explosives. 940 metric tons of fish were landed of which 26.3 per cent were obtained by net fishermen. The catch in 1968 was only 77.3 per cent of the 1966 catch and comparison of the landings by main species indicate that all stocks are being systematically overfished with a consequent decrease in the fishing population in the lagoons.

81. The construction of the fishing vessel Investigator was completed and the ship was launched officially on the 24th October 1968 by Lady Ramgoolam. The two other fishing boats (Solitaire and Explorer) fished banks around the Island partly to provide for the different types of fishing employed.

82. Work at the Mahebourg Fish Farm on the rearing of oysters and a number of other species of moluses was continued.

83. Dr. Henri Fougere, Fisheries Adviser, left Mauritius in September after a stay of 6 years. At the end of October Dr. Gozales Manero, Marketing/Processing Consultant to F.A.O./U.N.D.P.—Fisheries Development Project, arrived in Mauritius as an advance party to arrange for the arrival of the other members of the Fisheries Project.

84. Rodrigues suffered heavily from cyclone Henriette in January, 1968 followed by cyclone Monique in March, 1968 with gusts reaching 172 miles per hour. Those two cyclones caused severe damage to buildings, roads, livestock, fishing boats, crops, forestry and soil.

85. On about 1,000 unit farms anti-erosion work was improved. A 200,000 gallon reservoir was completed and another reservoir of 300,000 gallon capacity was started.

86. The value of exports from Rodrigues was just over Rs 1.5 million compared to almost Rs 2 million in 1967. There was a marked decrease in the export of sheep, goats and poultry with the onion crop remaining at about the same level as in the previous year.

87. The Agricultural Training Farm, established at Maréchal at the end of 1964 and financed largely by the United Kingdom Committee for Freedom from Hunger Campaign had continued to develop most satisfactorily under the able direction of the Reverend Father H. J. Smith. This training Farm had now become firmly established and will no doubt play a useful role in the agricultural development of Rodrigues.

II. Boards and Committees

88. The Chief Agricultural Officer or his representative served on the following boards and committees:

Agricultural College Advisory Board
Agricultural Marketing Board
Board of Agriculture, Fisheries and Natural Resources
Board of Examiners of the College of Agriculture
Board of Examiners for the Registration of Agricultural Chemists
Cane Release Committee
Comité de Collaboration Agricole—Maurice—Réunion -Madagasikara
Customs Tariff Advisory Board
Cyclone and Drought Insurance Board
Fisheries Committee
Government Sack Factory Board
Irrigation Committee
Land Acquisition Board
Land Settlement Committee
Malaria Advisory Board
Mauritius Sugar Industry Research Institute Executive Board
Mauritius Sugar Industry Research Advisory Committee
Sugar Industry Rehabilitation Fund Committee
Sugar Industry Reserve Fund Committee
Sugar Millers' Rehabilitation Fund Committee
Sugar Planters' Rehabilitation Fund Committee
Tea Control Board
Tobacco Board

III. Board of Agriculture, Fisheries and Natural Resources

89. The Board functions under Ordinance No. 29 of 1957. The following advisory committees were set up by the Board for specific purposes:

(a) The Cane Release Committee

(b) The Fisheries Committee

(c) The Irrigation Committee

(d) The Land Settlement Committee

90. The Board met on one occasion only and agreed to lease various Crown Lands, including Crown Lands forming part of catchment areas, for shooting and fishing.

91. The list of cane varieties approved for cultivation in 1968 by the Cane Release Committee was as follows:

M. 134/32 (Red, white and stripped)	M. 13/53
*M. 112/34	M. 13/56
*M. 423/41	M. 377/56
‡M. 147/44	Ebene 1/37
M. 31/45	Ebene 50/47
M. 202/46	*BH 10/12
M. 93/48	†B. 3337
M. 99/48	†B. 34104
M. 253/48	B. 37161
M. 409/51	B. 37172
M. 442/51	N. Co. 376

92. The Fisheries Committee did not meet during the year.

93. The Irrigation Committee met on eleven occasions. It was concerned with the allocation of water for irrigation purposes from the Magenta canal and La Ferme and La Nicolière reservoirs, the repair of the Magenta canal to reduce losses, the allocations of irrigation water to new planters or increased allocations to planters with existing water rights.

94. No meetings of the Land Settlement Committee were held.

IV. Mauritius Chamber of Agriculture

95. The Chamber of Agriculture continued to play an important role in the agricultural affairs of the country. Its representatives took part in the annual discussions in the United Kingdom in connection with the Commonwealth Sugar Agreement. It appointed a committee to administer the Sugar Industry Reserve Fund as well as nominated representatives to sit on numerous boards and committees. The work of this organisation was fully reported in its annual report.

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*To be uprooted before 31st December, 1969

†To be uprooted before 31st December, 1970

‡To be uprooted before 31st December, 1973

V. Comité de Collaboration Agricole Maurice—Réunion—Madagasikara

96. The seventeenth annual meeting of the Comité took place in Mauritius from the 22nd to the 29th October, 1968. Four delegates from both Reunion and Madagasikara attended the meeting and seven from Mauritius, including the outgoing and the new Director of the Mauritius Sugar Industry Research Institute. The meeting discussed control measures of the Fiji disease of Sugarcane, amendments to the convention governing the Comité de Collaboration Agricole, control of fruit flies and other matters. Visits arranged included the Botanical Gardens, a Sugar factory and a tea factory.

VI. College of Agriculture

97. The College is designed to provide trained scientists to meet the agricultural and sugar technology needs of the country. To this end, it offered two 3-year Diploma Courses, a 1-year Certificate Course in Tropical Agriculture and part-time courses in Cane Cultivation and Sugar Analysis.

98. The College of Agriculture founded by the late Sir Harold Tempany in 1923 is now part of the University of Mauritius and as such an autonomous institution. From the date of its establishment to the middle of 1968 it was an integral part of the Department of Agriculture and many members of the old and present staff of the Department have received their initial training there. Many members of the staff of the Department served as part time or full time lecturers at the College. Because of this, a close co-operation between the University and the Department will no doubt continue to exist for a long time to come.

99. The results of the last annual examination to be conducted under the responsibility of the Department of Agriculture and which were held in March, were as follows:

	1967		1968	
	Sat	*Passed*	*Sat*	*Passed*
Diploma in Agriculture, 1st Year ...	16	15	19	6
Diploma in Agriculture, 2nd Year ...	11	10	16	15
Diploma in Agriculture, 3rd Year ...	12	12	10	10
Diploma in Sugar Technology, 1st Year ...	12	8	10	9
Diploma in Sugar Technology, 2nd Year ...	6	6	8	8
Diploma in Sugar Technology, 3rd Year ...	5	5	6	6
Certificate in Tropical Agriculture ...	5	3	—	—
Certificate in Cane Cultivation ...	16	12	10	6
Certificate in Sugar Analysis ...	—	—	—	—

VII. Arbitration and Control Board

100. The Arbitration and Control Board operated under the Sale of Cane (Control) Ordinance. The executive machinery of the Board was run as a division of the Department.

Meeting of the Board

101. The Board held thirty meetings during the year, as follows:

Three meetings in connection with the assessment of sugar to planters;

Six meetings in connection with protests against assessment of sugar;

Four meetings in connection with changes of delimitation of factory areas;

Eight meetings in connection with cane testing;

Nine meetings in connection with the road rate of cane transport, the price of molasses, the refund of cost of cane transport and the closing down of weighbridges.

Cane Testing

102. The canes supplied by 205 planters or group of planters, and by 132 estate sections belonging to miller-planters were tested separately. The total number of tests carried out at 22 factories reached 19,554. The corresponding figures for the 1967 crop were 26,826 tests, in respect of 236 planters or group of planters and 137 miller planter estate sections supplying canes to 22 factories.

Assessment of Sugar

103. Following the publication of the final assessment of sugar to planters for the 1967 crop, 7 co-operative credit societies and 5 planters lodged protests against the awards made by the Board.

104. Following the hearing of the protests, five co-operative Credit Societies and one planter withdrew their protests. In the other cases the Board maintained its previous assessment.

Cost of Production

105. Questionnaires were sent to 75 planters, selected according to the weight of cane produced, and to the twenty-three sugar estates with factories to secure the data necessary for the computation of costs of production.

Transport Costs

106. Owing to a revision of the method used in calculating the Road Rate, the schedule of rates of transport of cane was issued by the Board only after the crop. As usual the schedule gave the maximum rate claimable by millers for the transport of planters' canes from the various outlying weighbridges to the factory in all factory areas.

The schedule was based on the following formula:

$$C = Rs\ (2.20 + .22m)$$

where ' C ' is the cost of transport per ton of cane and ' m ' the number of miles over which transport is effected.

107. According to law, the reimbursement of the cost of transport of planters' canes even by light railway is claimable by millers at the Road Rate, and limited to the cost of transport over a maximum of four miles. Also millers have to reimburse planters for expenditure incurred by them for transport of their cane over distances in excess of four miles. In consequence reimbursement is claimable by planters for distances in excess of four miles at the rate of R 0.22 per ton mile.

Delimitation of Factory Areas

108. The delimitations of factory areas were not altered during the year under review. Two applications for changes were received by the Board, but none was granted.

Permits to Middlemen

109. Permits were issued to twenty five middlemen for the crop.

Complaints against Middlemen

110. There were forty three complaints made by planters against middlemen. The majority of the disputes were settled between the parties through the good offices of an officer of the Board.

111. Middlemen were requested to come to the Board's office for the examination of their books of account by the Accountant. Their accounts were found to conform with the instructions issued to them.

Cane Contracts

112. There were 12,460 contracts registered by the Board. Total number of contracts in force for the crop was 15,770, covering some 28,500 individual planters.

Breach of the Sale of Cane (Control) Ordinance

113. Eleven cases of breach of the Sale of Cane (Control) Ordinance were reported to the Police.

114. The number of planters who failed to enter into contract before the 31st May totalled 470. In 1967, the corresponding number was 419.

Cane Varieties

115. During 1968, the varieties approved for planting were the following: M. 134/32 (red, white and striped), M. 31/45, M. 202/46, M. 93/48, M. 99/48, M. 253/48, M. 409/51, M. 442, M. 13/53, M. 13/56, M. 377/56, Ebene 1/37, Ebene 50/47, B. 37161, B. 37172, N. Co. 376.

116. The following varieties had to be uprooted:

M. 112/34 before 31st December, 1969
M. 423/41 before 31st December, 1969
BH. 10/12 before 31st December, 1969
M. 147/44 before 31st December, 1973
B. 3337 before 31st December, 1970
B. 34104 before 31st December, 1970

Control of Weighbridges

117. The number of weighbridges in operation was 106, compared with 110 in 1967, four having closed down with the Board's approval. All weighbridges were tested for accuracy before the beginning of the crop and all were found correct. All weighbridges were again tested for accuracy in the course of the crop and were again found correct.

Surprise Checks carried out at Weighbridges during the Crop

118. During the crop, 1,687 surprise checks were carried out and 1,642 vehicles were reweighed (625 carts and 1,017 lorries). In 11 cases the weighing was found to be inaccurate. In 6 cases the weighers were prosecuted and in the other cases a warning was issued.

VIII. The Sugar Industry

Crop Results

119. Crop results were disappointing, mainly owing to bad distribution of rain throughout the growing season. January was very dry, and from April to June conditions were again distinctly unfavourable to growth as rainfall and night temperatures remained below normal. There were also two windy periods, associated with cyclonic activity, which were detrimental to well grown cane. Conditions during maturation period on the other hand were better than average. Nevertheless, the quality of cane varied only slightly from the average of the past few years. Cane yield was 10 per cent below that of 1967.

120. Hereunder are some of the crop results compared with those of 1967:

	1968	*1967*
Area cultivated, arpents ...	203,000	204,000
Area reaped arpents ...	190,000	191,700
Metric Tons of cane reaped ...	5,152,240	5,814,468
Metric Tons of Sugar produced ...	596,549	638,813
Tons of cane per arpent ...	27.1	30.3
Tons of sugar per arpent ...	3.14	3.33
Yield of sugar per cent cane ...	11.58	10.98
Hourly crushing rate ...	101.9	101.9
Daily crushing rate	2,020	1,943

Cane Varieties

121. In order of importance, the main varieties making up the 1968 crop were the following: M. 147/44, M 93/48, M 202/45, M 442/51, M31/45 and B 371/72. They accounted for 74.1 per cent of the crop; the remaining 25.9 per cent was made up of Ebene 50/47, Ebene 1/37 and other varieties.

Quotas and Prices

122. There were no changes from the previous year, and the negotiated price quota for the calendar year 1968 remained 380,00 0long tons at the price of £47-10shs.

Exports

123. The exports of sugar were as follows:

Destination	*Long Tons*	
	1968	*1967*
United Kingdom ...	414,301	470,889
Canada	139,200	36,150
U.S.A.	15,400	16,000
Total ...	568,901	523,039

124. Apart from the sugar exported, there were 28,864 long tons consumed locally.

Molasses and Alcohol

125. The production of molasses amounted to 132,743 metric tons. During the year, 127,903 metric tons were exported. About 7, 000 tons of molasses were used locally for the manufacture of rum and various alcoholic products. Alcohol produced amounted to about 1,344,000 litres of pure alcohol, the greater part of which was rum and denatured spirit. A small part was used for the manufacture of vinegar, and perfumes. A limited quantity, amounting to 21,700 litres, was exported.

IX. Tea Industry

Tea Control Board

126. The Board which was established under the Tea Industry Control Ordinance 29 of 1961, as subsequently amended, held regular meetings during the year. Mr. L. Moorlee, Agronomist who had been in charge of Tea Division since the departure of Mr. D. N. Andrews was also Secretary Manager of the Board. On the appointment of Dr. Moutia as Senior Agricultural Officer, the latter was asked to take over from Mr. L. Moorlee as Secretary/Manager. As required by the regulations the Board determined the minimum price to be paid for green leaf by the factories and decided to maintain the price at 28 cents per half kilo. The Board was also concerned with reviewing the existing regulations and the ordinance and drew up a new form of contract for the purchase of green leaf. At the end of the year the Board had made a recommendation to the Minister for the appointment of the Executive Assistant. Publicity campaign for tea continued in the Press and was started on T.V.

Statistical

127. The Board continued to issue quarterly and annual statistical reviews.

Climate

128. Three cyclones occurred during the year: *Ida* in February produced gusts of 65 miles per hour and continuous wind speeds exceeding 30 miles per hour during an hour, and caused damage to the tea flush reducing the yield during that month. Cyclones *Monica* in March and *Annie* in November caused little damage. Rainfall however was deficient, at the Tea Experimental Station, being 28.36 inches below normal; only in the months of February and March was the rainfall above normal. A complete study of the various climatic factors in relation to tea flushing is being planned.

129. There is however evidence that growth of young tea is handicapped by rainfall below normal especially in the young tea planted on ridges recovering very slowly after pruning.

Tea Factories

130. With the opening of Dubreuil Factory in late 1967 there were eight factories in operation during 1968. However none of the factories worked at full capacity and the amount of leaf handled by Dubreuil Factory during the year could easily have been handled by the other factories.

Mauritian Tea

131. Production amounted to 2,287,791 kilos in 1968 compared to 2,190,240 kilos the previous year. The quantity released for export was 1,727,343 kilos compared to 1,746,808 kilos in 1967. Local sales amounted to 532,373 kilos compared to 553,685 kilos the previous year, but in this case no account is taken of the existing stock at the beginning of the year in the retail and packing trade so that it cannot be said that consumption was reduced during the year. The stocks held by the factories at the end of the year was 238,208 kilos compared to 213,879 kilos at the end of last year.

132. The total value of exports was Rs 9,635,278 and because of the increasing amount of quality teas sold by private contract in South Africa the London Price has little relevance to the average price of Mauritian teas.

Development Project

133. The first Tea Development Project which started in 1956 was designed to develop 3,000 arpents under tea during the five years 1956-61. As a result of successive set backs starting with the 1960 cyclones the scheme was completed late in 1966. The total area planted was 2,481 arpents of which 212 was private land. Of the 2,269 arpents of Crown Land, 1,980 arpents were leased to medium (50 arpents) and big planters (300 arpents). Seed at stake was used as the method of establishment and lack of uniformity is now very apparent in these plantations. Furthermore too early hard cropping together with indiscriminate pruning have adversely affected the bushes so that the yields how obtained from these plantations are still low.

New Development Project

134. The second Tea Development Project started in 1962. It envisaged the planting of 500 arpents per annum by Government for distribution when established to small tenants. The current 1966-70 Development Programme had originally envisaged the planting of 4,000 arpents at the rate of 1,000 arpents in each of the 4 years.

135. During the year a major change took place in the establishment method. It had been the practice previously to import large quantities of seed from Africa, keep them in hessian bags in cold storage and to take

them out at varying times throughout the year to plant the seed at stake in the field. That had resulted in considerable damage to the seed with subsequent poor establishment and lack of uniformity. It was decided to establish central nurseries to plant all seeds and from there the seedling would be put out in the field when ready.

136. A central nursery was established at Crown Land Diore and local seed were sown in beds covering an effective area of 41 arpents. That nursery should produce enough plants under normal conditions to plant 600 arpents: it should be noted here in comparison that the area planted at stake in 1966 was 548 arpents and in 1967, 553 arpents. However, at the time of seed fall, which had been particularly good, establishment of nursery beds had not been completed and all the seed from the seed gardens could not be planted. Storage in charcoal was tried but that was not successful. Steps have been taken to have the seed beds prepared well in advance so that the seed are put into the ground as soon as possible after collection.

137. No new smallholdings were distributed during the year. However the smallholdings run by the three co-operatives of Midlands, Dubreuil and Vuillemain were the subject of constant attention throughout the year. Neglected and abandoned plots were taken over and put back into condition. After some early resistance the majority of smallholders accepted to adopt the methods advocated: deeper drains, careful pruning, minimum tipping, height of thirty inches and flat plucking surface. Similarly, considerable improvement was recorded among the Project planters.

138. The development area now under the control of the Tea Division amounts to 2,117 arpents.

That area may be broken down as follows:

More than 4 years old but less than 5 years

Rivière du Bois	... ...	255 arpents

More than 3 years old but less than 4 years

Rivière du Bois	... ...	475 arpents
Dick ...	... ...	110 "
Dubreuil	... ...	157 "

More than 2 years old but less than 3 years old:

Betty ...	... ...	152 arpents
Devoyenne	... ...	75 "
Rivière du Bois	... ...	133 "
Ferette ...	... ...	76 "
Cannelière	... ...	90 "

More than 1 year old but less than 2 years old:

Rivière du Bois	... ...	95 arpents
Vuillemain	... ...	53 "
Parc aux Cerfs	... ...	103 "
Ferette ...	... ...	47 "
Devoyenne	... ...	255 "

Less than 1 year old:

Dioré Nursery	... ...	41 arpents

Because of shortage of labour and of supervisory and senior staff it was decided to concentrate the effort of the division into those areas where urgent attention was required namely Rivière du Bois, Dubreuil, Dick, Cannelière, Ferrette, Vuillemain and Dioré Nursery. In all these areas drains were inadequate and the bushes were suffering from waterlogging. Drains are being improved.

139. Work was stopped at Crown Lands Parc-aux-Cerfs and Devoyenne during the year: these regions are fairly rocky and seed at stake there has not been successful.

Tea Seed

140. Except for a small consignment of 80 kilos of seed from Central Africa no seed was imported, compared with an importation of 16,932 kilos in the last year. Some 43,628 lbs of seed—enough to plant 1,000 arpents, was collected from the seven seed gardens not counting Les Mares but because of lack of nursery space and deterioration in storage some 16,000 lbs was damaged.

Tea Experiment Station

141. Climatic conditions at Wooton were such that from April until the end of the year rainfall was below normal, the effect was particularly severe on pruned bushes which recovered very slowly and cropping became normal only in late November.

142. The table below shows the monthly distribution for the year at Wooton compared with the average of the last 18 years.

	18-year average (1950–67) ins. / month	*1968 ins. / month*
January	18.42	9.32
February	16.47	30.44
March	20.17	22.95
April	13.18	2.74
May	10.34	6.49
June	11.39	6.53
July	11.22	10.75
August	9.89	6.23
September	7.26	5.13
October	6.27	3.91
November	7.27	5.26
December	13.28	6.35
Total ...	145.06	116.10

143. Record of rainfall, sunshine and maximum and minimum temperatures continued during the year.

144. The amount of leaf harvested during the year amounted to 359,801 lbs compared to 522,826 lbs in 1967. Monthly yield in pounds of green leaf and the percentage of the total crop for the years 1965, 1966, 1967 and 1968 are given below:

	1965		1966		1967		1968	
	lbs	%	lbs	%	lbs	%	lbs	%
January ...	53,982	15.81	44,373	10.65	61,998	11.86	71,513	19.87
February ...	52,352	15.34	59,762	14.32	78,687	15.05	48,809	13.56
March ...	47,929	14.04	41,493	9.94	75,011	14.35	55,059	15.80
April ...	34,422	10.09	39,831	9.55	46,318	8.86	28,103	7.82
May ...	17,672	5.18	29,585	7.09	23,487	4.49	19,004	5.28
June ...	8,652	2.54	15,665	3.76	12,935	2.48	2,121	0.59
July ...	8.751	2.56	4.892	1.17	6,887	1.32	—	—
August ...	244	.07	5,949	1.42	2,922	2.47	—	—
September ...	13,350	3.91	13,178	3.16	28,728	5.49	9,061	2.52
October ...	26,243	7.69	38,778	9.29	48,593	9.29	27,491	7.69
November ...	22,536	6 61	47,450	11.37	53,587	10.25	30,018	8.34
December ...	55,145	16.16	76,298	18.28	73.673	14.09	68,622	19.07
TOTAL ...	341.278	100.00	417,254	100.00	522,826	100.00	359,801	10.000

Average yield in lbs per acre:

Average yield in lbs per acre			
1965	1966	1967	1968
lbs	lbs	lbs	lbs
4,893	5,982	7,497	5,159

145. It is impossible to draw any conclusion from the yields pattern over the whole of the 69.74 arpents at Wooton, because not all the fields had received similar pruning treatments. In many fields the bushes were of irregular heights, had not been pruned for 4 years and had attained height of 45 to 50 inches with consequently a high proportion of banjhi leaf and difficulty in plucking. It was therefore decided to introduce some uniformity by pruning as many as possible of the fields to 22 inches from the ground with tipping at 30 inches. It will now be possible to start with comprehensive trails. It will be in 1969 and afterwards that the full effect of the pruning and cropping will be seen.

146. Yields during the first six months of the 1968-69 crop year was low because of the large acreage pruned, the dry weather and shortage of labourers skilled in pruning.

Vegetative Propagation

147. The two propagation houses and the weaning unit were out of commission for most of the year. The necessary repairs were carried out.

148. The success of any vegetative propagation campaign depends entirely on the ease with which the tea cutting can root under normal conditions. The system now in use at the Tea Experiment Station is too complicated and too expensive for it to be of any interest to the tea planter. The ideal tea clone must be vigorous, it must root easily, give high yields and produce good quality tea. The clone 1H which has good appearance and which has unfortunately not been planted on a sufficiently large area to be manufactured commercially although the reports from samples after Pizey rolling are favourable is still being propagated and it is hoped to establish an acre block of that clone next year. Polythene tubes and peat pots are being used to ensure better drainage as it was noticed that a large percentage of death occurred after rooting in the humidifier and before planting out in the fields due to water logging. The conditions of the young plants improved considerably when the bottom of the polythene pots were cut away.

149. The approach to vegetative propagation now is to select bushes for their appearance, vigour and ease of rooting of cuttings. When success in rooting has been obtained then the mother bush is harvested for mini manufacture.

Experiments on Mature Tea

150. Plots have been established where yields are being taken. They all receive the same treatments and the different treatments of fertilisers and pruning cycle will be started after a crop cycle of one year. Preliminary observational trials are being carried out on the recovery from pruning heights and its effect on yields. Studies have also been started on the expansion rate of periodic and aperiodic shoots of the tea bush, and a survey is being made of pests and diseases of the tea bush.

Comparison of Jats for Quality of Made Tea

151. No work was done on that line as the mini manufacture equipment was not in working condition.

New Trial

152. Plots for preliminary yield determinations were established for putting down new trials on manuring and pruning next year. An acre of ratoon cane was interplanted with stumps in Highlands Sugar Estate with the co-operation of the Manager.

Leguminous and other Plants

153. Seed of *Indigofera teysmania* was sown but germination was not good and growth of the plants was slow. *Flemingia congesta* continued to be propagated vegetatively for use as windbreak. *Hakea saligna* cuttings taken in early summer failed to root.

General

154. Considerable interest was aroused for tea during the year, the division receiving numerous enquiries about occupation of tea lands planted by government.

155. One Sugar Estate took a great step forward by announcing a plan to plant 800 arpents of tea in marginal cane lands, at the rate of 200 arpents per year. Planting with seed at stake is strongly discouraged and it is proposed that all new tea plantations will in future be by seedlings, to be provided at cost to the private sector.

Production

156. Mauritius produced 5,044,094 lbs of black tea. The output of factories over the past five years was as follows:

Factory	*1964* lbs	*1965* lbs	*1966* lbs	*1967* lbs	*1968* lbs
Bois Cheri	937,143	1,279,416	1,317,467	1,295,659	1,411,426
La Flora	839,524	865,739	895,093	918,440	980,390
Usine Corson ...	514,681	578,367	525,222	466,531	498,474
Pont Colville ...	241,495	210,372	192,122	268,300	245,071
Nouvelle France ...	226,921	315,862	365,461	461,837	454,140
Chartreuse	310,769	579,592	999,774	1,114,346	960,875
Mare Anguilles ...	—	—	57,900	162,151	126,497
Dubreuil	—	—	—	141,755	367,221
TOTAL ...	3,070,533	3,829,348	4,353,039	4,829,019	3,044,094

157. The total export to all destinations was 3,769,839 lbs at a value of Rs 9,635,280—which compared with previous years as under:

Destinations	*1964* lbs	*1965* lbs	*1966* lbs	*1967* lbs	*1968* lbs
United Kingdom ...	1,697,691	2,346,135	2,631,950	2,351,479	1,690,318
South Africa ...	6,158	18,943	121,360	1,079,680	2,034,424
New Zealand ...	—	—	7,783	3,241	3,600
Australia	—	—	—	44	—
Eire	—	—	31,601	4,862	—
Madagascar ...	3,688	5,408	16,368	14,384	27,489
Reunion	—	—	8,208	2,165	4,326
United States of America ...	—	—	—	4,319	—
Seychelles	—	—	—	—	1,103
Comores Islands ...	93	—	1,003	800	1,083
Kenya	17,548	23,444	27,355	28,239	4,013
Malaysia	—	756	—	2,161	—
West Germany ...		9,975	5,311	—	2,701
Ireland	—	27,670	—	—	—
Canada		2,269	2,851	7,410	—
British Indian Ocean Territories ...	—	—	1,149	573	560
Juan de Nova ...	—	—	99	—	79
France	—	—	—	199	143
TOTAL ...	1,725,178	2,434,605	2,855,038	3,499,556	3,769,839

158. Imports of Tea were as follows:

Origin	*1964* *lb*	*1965* *lb*	*1966* *lb*	*1967* *lb*	*1968* *lb*
China ...	11,130	13,348	10,406	10,519	6,863
Hong Kong ...	1,978	421	—	318	624
Ceylon ...	494	942	898	1,135	902
India ...	9	238	66	214	75
Formosa ...	—	—	—	—	—
United Kingdom ...	1,129	511	452	485	1,894
Kenya ...	8,129	—	—	—	—
Japan ...	—	970	1,323	1,058	88
TOTAL ...	22,869	16,430	13,145	13,729	10,446

STAFF

159. Dr. Moutia was appointed Senior Agricultural Officer in March. Mr. Moorlee, the Agronomist, was transferred from the Division in October. Mr. Ramlogun who had been seconded from the Forests Department at the end of 1967 was in the Division throughout the year and he was in charge of experimental work at Wooton. There was during the year a number of unfilled vacancies which have inevitably affected the Division.

VISITORS, VISITS AND EXTENSION WORK

160. Officers of the division carried out a number of visits on various tea plantations during the year and tea extension work is carried out from Wooton. Talks and demonstrations were given to small holders at Vuillemain, Dubreuil and Midlands and the Senior Agricultural Officer addressed the Chartreuse members at their Annual General Meeting. Planters, both small and big, called at Wooton during the year and took an interest in the work being carried out by the division.

PUBLICATIONS

161. The following papers were published during the year: *Mauritius Tea for Development* by Sydney Moutia in New Commonweath Trade and Commerce No. 7, 1968.

La Production du thé à Maurice et sa commercialisation by Sydney Moutia and M. V. M. Herchenroder in Revue Agricole et Sucrière de l'Ile Maurice Vol. 47 No. 4.

X. Tobacco Industry

162. Production of cured tobacco was limited to the estimated requirements of local cigarette manufacturers, British-American Tobacco Co. (Mauritius) Ltd., Amalgamated Tobacco Corporation (Mauritius) Ltd., and Consolidated Tobacco Co. Ltd. The last named company proposes to commence operations in 1970.

163. The industry is controlled by a Board which publishes annually a full report on the industry.

CROP CONDITIONS

164. The crop was not affected by adverse climatic conditions, save in a few cases.

165. The incidence of leaf spot diseases, " frogeye " and " alternaria ", was negligible. " Virus " diseases were observed here and there in a few fields, but not in a virulent form, save at Trou aux Biches, where two Amarello plantations were severely affected. " Granville wilt " was severe in some localities of Riche Mare.

166. " Root knot nematode " was observed here and there in plantations of both varieties. Attacks of " cutworms ", " aphids " and " leaf miner " were very slight.

Permits

167. The number of permits issued for the planting of tobacco in 1968, compared with the previous year, was as follows:

	1967	1968
Flue-cured Virginia	413	505
Air-cured Amarello	364	448
Total ...	777	953

168. Permits for a larger acreage for both Virginia fluecured and Amarello air-cured were issued in 1968. The increase in acreage for Virginia fluecured was due to the provision made for the Consolidated Tobacco Co. Ltd. The increase in acreage for Amarello air-cured was due to the increased requirements of the manufacturers, to build-up stocks in order to meet consumer demand.

Production

169. The production of tobacco in 1968, compared with the previous year, was as follows:

	1967		1968	
	Arpents planted	*Kgs*	*Arpents planted*	*Kgs*
Flue-cured Virginia	413	267,314	505	277,453
Air-cured Amarello	344	351,705	448	449,804
Total ..	757	619,019	953	727,257

Yields and Returns

	Average yield per arpent	
	1967	1968
	Kgs	Kgs
Flue-cured Virginia	647	549
Air-cured Amarello	905	1,004
	Average return per arpent	
	1967	1968
	Rs	Rs
Flue-cured Virginia	4,592	4,397
Air-cured Amarello	2,165	2,621
	Average value per kg	
	1967	1968
	Rs	Rs
Flue-cured Virginia	7.09	8.00
Air-cured Amarello	2.39	2.61

Quality

170. Virgina flue-cured and Amarello air-cured were of better quality than in 1967, as shown in the following tables:

	Percentage of Bright and Medium grades				
	1964	*1965*	*1966*	*1967*	*1968*
Flue-cured	91	89	81	84	95
Air-cured	34	12	19	17	36

Local Manufacture

171. The Manufacturers' purchases and usings of domestic and imported leaf were as follows:

	Domestic	*Imported*	*Total*	% *Total Imported*	*C.I.F. Value per kg.*	
					Imported	*Domestic*
	Kgs	Kgs	Kgs		Rs	Rs
B.A.T. Co. Mts. Ltd...	414,348	45.610			10.53	5.20
A.T.C. Mts. Ltd. ...	153,250					7.40
C.T.C. Ltd. ...	20,161					8.40
Total ...	587,759	45,610	633,369	7.2	12.61	5.74

1968–Usings	*Domestic*	*Imported*	*Total*	% *Total Imported*	*C.I.F. Value per kg.*	
					Imported	*Domestic*
	Kgs	Kgs	Kgs		Rs	Rs
B.A.T. Co. Mts. Ltd...	397,263	43,222	440,485	9.8	—	—
A.T.C. Mts. Ltd. ...	135,625	447	136,072	.3	—	—
Total ..	532,888	43,669	576,557	7.6	—	—

1967	*Domestic*	*Imported*	*Total*	% *Total Imported*	*C.I.F. Value per kg*	
					Imported	*Domestic*
	(Kgs)	(Kgs)	(Kgs)		(Rs)	(Rs)
Purchases	593,851	20,232	614,083	3.3	10.53	5.75
Usings	525,833	52.162	577,995	9.0	—	—

172. The percentage of imported leaf used in manufacture decreased by 1.4 per cent in 1968, compared with 1967, as illustrated in the following table:

	Year				
	1964	*1965*	*1966*	*1967*	*1968*
% Imported ...	22.8	17.2	12.8	9.0	7.6

173. These figures indicated that usings of domestic leaf have increased compared with 1967. There was a decrease in usings of Flue-cured Virginia, and an increase in usings of Air-cured Amarello.

174. The average C.I.F. value of imported Virginian leaf was Rs 12:61 per kg. compared with Rs 8:91 per kg. for domestic Virginian. The average value of air-cured Amarello was Rs 3:32 per kg.

175. Domestic Virginian blended with imported leaf is used in the manufacture of " State Express Filter King 555 ", " Matinée " " Vogue " and "-Embassy " brands of cigarettes which used to sell in competition with imported Virginian cigarettes. However, since the increase in import duties on the 20th July, 1966, and the imposition of a surcharge of 5 per cent on duty payments on the 8th November, 1967, the demand for imported cigarettes has fallen to a low level, and so, competition with imported cigarettes is now negligible. In fact, imported cigarettes are mainly for use as ships' stores.

Imports

176. Imports of leaf and cigarettes for the last two years are tabulated below:

	1967		*1968*	
	Kgs.	*Value Rupees*	*Kgs.*	*Value Rupees*
Cigarettes* ..	13,247	282,680	23,843	589,185
Leaf :				
U.S.A.	17,994	206,517	40,596	555,951
Other sources ...	2,238	6,557	5,014	19,210
Total leaf ...	20,232	213,074	45,610	575,161
Grand Total ...	33,479	495,754	69,453	1,164,346

177. Usings of domestic leaf have increased by Kgs 7,055 while usings of imported leaf have decreased by Kgs 8,493 in 1968, compared with 1967; a net decrease of Kgs 1,438.

178. The increase in usings of domestic leaf was 1.3 per cent compared with a decrease of 10.6 per cent of imported leaf.

Warehouse

179. The buildings were properly maintained.

XI. Fibre Industry

180. The total production of Mauritius Hemp was sold by the Mauritius Hemp Producers' Syndicate to the Government Sack Factory for weaving into sacks (1) to be used for the bagging of local sugar (2) to be used for flour purchased from France and Australia (3) for export. Comparative Statistics in connection with production were as follows:

	1967	*1968*
Number of factories operating ...	9	8
Fibre produced (metric tons) ...	1,602	1,318,740
Value (Rupees)	1,941,241	1,598,312
Area under aloe (arpents) :		
Wild	2,905	1,715
Plantation	373	125

Sack Factory

181. This organisation is controlled by a Board which publishes annually a full report on its activities.

*Imported cigarettes a remainly for use as ships' stores.

182. The factory purchased fibre produced locally and imported jute cuttings to the extent of:

		1967	*1968*
		kgs	kgs
Aloe	...	1,602,759	1,318,740
Jute	...	302,510	504,010

The carry over from the previous year was:

Aloe	...	244,345	598,902
Jute	...	75,845	107,418

The factory consumed:

Aloe	...	1,248,043	1,352,395
Jute	...	271,205	294,327

The carry over for the year was:

Aloe	...	598,902	565,074
Jute	...	107,418	317,101

183. The prices paid for fibre were as follows:

		Price per metric ton	
		1967	*1968*
		Rs cs	Rs cs
Aloe fibre :—			
Very Good	...	1,300.00	1,300.00
Good ...	...	1,250.00	1,250.00
Fair ...	...	1,225.00	1,225.00
Tow ...	...	1,000.00	1,000.00
Sisal ...	...	1,250.00	1,250.00
Cuttings ..	...	900.00	900.00
Ropes ...	...	900.00	900.00
Jute :—			
Cuttings ...	...	700.00	589.50

184. The average price payable for aloe fibre was Rs 1,212 per metric ton and this will be applicable until 31st December, 1969.

185. The average price paid for Jute cuttings was Rs 589.50.

186. The factory's output compared with that for 1967 was as follows:

		1967	*1968*
		Units	*Units*
Sacks (6×8) 26½×38″ Aloe	...	554	651,554
Sacks (5×7) 26½×38″ Aloe/Jute	...	869,750	16,095
Sacks (10×10. ½) 25″×41″ Aloe/Jute	...	460,500	141,750
Other sacks	...	10,501	6,400
Sacks (10×9. ½) 23. ⅝×43″ Aloe/Jute	...	—	396,675
Sacks (10×11) Aloe/Jute ...	...	—	3,779
Sacks (6×8) 26½″×38″ Aloe/Jute	...	—	11,000
Sacks (5×7) 26½″×38″ Aloe	...	—	18,442
Potato Pockets 14½×32″ Aloe/Jute	...	—	302,000
Potato Pockets 13½×32 Aloe/Jute	...	—	1,000

		1966	*1967*
		Yards	*Yards*
Filter press cloth	...	19,828	14,146
Other fabrics	...	4,841	—
Sacking Cloth	...	—	2,754
		Kgs	*Kgs*
Yarn ...	...	16,630	16,097
Ropes ...	...	9,095	6,547
Other Fabrics	...	—	685

187. The Sugar Millers requirements of sacks for 1968 were:

(6 × 8) 26½″ × 38″ – Aloe	...	610,000 units
(5 × 7) 26½″ × 38″ – Aloe / Jute	...	423,750 units

188. During the year ended 31st December, 1968, the following exports were made:

		Units
To France :	(10×9.1/3) 23.5/8″×43″ Aloe/Jute sacks ...	300,725
To Australia :	(10×10.1/3) 25″×41″ Aloe/Jute sacks ...	157,750
To Iraq :	28″×40″–Aloe	18,240
To South Africa :		
	(a) Potato Pockets 14½″×32″ Aloe/Jute ...	250,000
	(b) Potato Pockets 13½″×32″ Aloe/Jute ...	1,000
	(c) Aloe/Jute Bags 26½″×44″	10,000
	(d) Aloe/Jute Bags 26½″×38″	30,000

189. During the year ended 31st December, 1968, the factory purchased 235,984 second hand sacks for reconditioning.

190. 92,945 reconditioned sacks were exported to Madagascar, 89,750 to South Africa and 35,955 were sold within the country.

191. The operation of the factory resulted in a net loss of Rs 273,345 for the year ended 31st December, 1968, compared with a net loss of Rs 196,198 for the year 1967.

192. The net loss for 1968 arises mainly from the sale of:

(a) 610,000 (6 × 8) sacks at Rs 1.7122 each compared with a cost of Rs 2.1359.

(b) 423,00 (5×7) sacks at Rs 1.3962 each compared with a cost of Rs 1.80.

(c) 300,725 (10×9.1/3) sacks at Rs 2.021 each compared with a cost of Rs Rs 2.529.

(d) 157.750 (10×10.1/3) sacks at Rs 2.021 each compared with a cost of Rs 2.529.

193. The production and sales of reconditioned sacks showed a profit of Rs 102,005 for the year ended 31st December, 1968.

XII. Livestock

Milch Cattle

194. At the end of the year, the two livestock breeding stations at Curepipe and Palmar carried a total of 290 head of the Creole milch breed—225 females and 65 males. The average production of lactating cows was 5.21 kgs. of milk per head per diem. There were 92 calvings—44 males and 48 females. 13 heifers calved at an average age of 48 months. The average weight of bull calves at birth was 31.5 kgs. and that of heifer calves was 29.7 kgs. At Curepipe Livestock Breeding Station over a lactation period of

305 days first calvers yielded 4.47 kgs of milk per head per diem; the best performer yielded 5.8 kgs. with a peak of 11.8 kgs. Over 305 days, second calvers yielded an average of 6.4 kgs. of milk per head per diem; the best performer yielded 8.5 kgs with a peak of 18.0 kgs. Over 305 days, third calvers yielded 6.5 kgs. of milk per head per diem; the best performer yielded 9.7 kgs. with a peak of 19.9 kgs. Over 305 days, 11 cows with more than 3 calvings, gave 7.0 kgs. of milk per head per diem; the best performer yielded 10.1 kgs. with a peak of 21.5 kgs.

Herd Cattle

195. The Livestock Breeding Station at Palmar carried 185 head of cattle of all ages of the Ongole and Boran breeds and their crosses. There were in all 36 calvings out of which 17 were from improved Brahman X Ongole breed and 9 were from Boran X Ongole and 10 of pure Boran breeds. During the year 44 calves of the above breeds were weaned at an age of 6 months. 5 Brahman X Ongle bulls, 21 Ongle cows, 4 boran cows and 1 calf were sold for breeding. 10 Brahman X Ongole steers, 2 pure Ongole steers, 16 Boran X Ongole steers and 10 pure Boran steers were sold for draft purposes. 2 Ongole cow and 3 Boran cows were sold for slaughter.

Pigs

196. At the end of the year the total number of pigs at Curepipe Livestock Breeding Station was 88. 16 litters with an average birth rate of 11 piglets per litter and an average birth weight of 2.64 lbs were recorded. 16 litters were weaned with an average number of 5 piglets/litter and an average weight of 32.6 lbs. per head at 8 week old. 20 young boars and 15 gilts were sold for breeding to local breeders. 1 boar and 6 gilts were sold to Centre d'Elevage of La Reunion. 1 adult boar and 1 young and 1 gilt were sold for slaughter.

Goats

197. At the end of the year there were a total of 126 goats at Palmar Livestock Breeding Station. These were classified as follows: 81 Anglo Nubians; 31 Jumna Pari; 4 British Alpines and 10 Rodriguans. 33 does kidded during the year. The milk production of the Jumna Paris continued to be recorded. The average production was 0.5 kg per head per day. 1 pure bred Jumna Pari doe; 5 bucks and 1 doe of Jumna Pari X Rod, 8 pure bred Anglo Nubian bucks and 2 Anglo Nubian X Rod bucks were sold for breeding to local breeders. 2 Anglo Nubian X Rod. bucks were sold for slaughter. 2 Pure bred Anglo Nubian bucks were sent to Rodrigues for use at the Agricultural Training Farm.

Poultry Breeding Centre

198. The Centre maintained parent stock of " Hybrid 7 " and " Hybrid 4 " strain from F. & G. Sykes for the production of layers. In addition the Poultry Breeding Centre maintained Cobb's broiler parent stock as well as parent stock of Ledbreast Pilch for the production of broiler chicks.

199. During the year the Poultry Breeding Centre hatched 110,636 chicks as against 106,222 in 1967, an increased output of 4.16 per cent of the total production. 23,853 day-old pullets, 2,50 month-old pullets and 46 point-of-lay pullets for the production of eggs were sold to poultry keepers. To help production of poultry meat 55,059 broiler chicks were supplied to the two established commercial broiler producers and a few enthusiasts; and in addition 26,497 day-old and month-old male chicks from laying stock were sold for the back yard production of poultry meat. 7,830 kg 552 gms of dressed chicken and culls were sold for the table. The Centre also provided 38 chicks to the Animal Health Laboratory for the testing of vaccines, 84 month-old pullets to the Agricultural Extension Services and 10 point-of-lay pullets to the Palmar Livestock Breeding Station.

" Hybrid 7 "

200. A total of 35,583 " Hybrid 7 " chicks were produced of which 15,368 day-old pullets, 1,749 month-old pullets and 17,535 day-old cockerels and 48 month-old cockerels were sold to poultry keepers for egg and poultry meat production respectively.

" Hybrid 4 "

201. A total of 19,111 " Hybrid 4 " chicks were produced, of which 16,970 day-old as hatched, 791 month-old pullets and 429 month-old cockerels were sold.

Broiler Chicks

202. A total of 55,942 broiler chicks were produced of which 54,464 day-old chicks were supplied to the two broiler producers, 595 day-old and month-old chicks were sold to a few enthusiasts.

Egg Production

203. 286,419 eggs were produced at the Poultry Breeding Centre. The monthly production of the various breeds maintained during the year was as follows:

Month	*Breed*							
	Parent Stock 4	*Parent Stock 7*	*Parent Stock Cobbs*	*Parent Stock Led Breast Pilch*	*Hybrid 4*	*Hybrid 4 & 7*	*Mixed*	*Total*
January ...	17	3,057	9,063	7,440	481	—	—	20,058
February ...	785	5,464	5,958	4,355	316	—	—	16,878
March	3,276	5,933	4,173	2,808	260	—	—	16,450
April	6,049	6,430	799	5,885	223	26	33	19,412
May	6,528	9,797	2,595	4,925	250	509	8	24,637
June	6,546	8,899	2,244	7,632	30	668	—	26,027
July	6,715	10,779	3,369	9,196	—	942	—	31,001
August	6,652	10,588	5,247	7,789	—	1,185	—	31,461
September ...	5,992	9,671	3,769	6,315	—	1,724	—	27,471
October ...	6,069	9,604	3,073	3,819	—	1,673	—	24,238
November ...	5,167	8,988	7,245	2,421	—	1,435	—	25,256
December ...	5,414	6,714	8,315	1,385	—	1,702	—	23,530
Total ...	59,210	95,924	55,850	63,970	1,560	9,864	41	286,419

204. Out of 286,419 eggs produced and 2,991 eggs carried forward from 1967, 92,206 eggs were sold for the table, 171,837 eggs were incubated for the supply of chicks to the public, 2,930 eggs were issued to the Animal Health Laboratory for vaccine production and 1,128 eggs to the Artificial Insemination Laboratory. The stock in hand at 31st December, 1968 was 4,003 eggs.

Reproduction Performance

205. During the year under review 110,636 chicks were hatched. The average fertility and hatchability were 80.8 per cent and 62.8 per cent respectively of all eggs set. The monthly reproductive performance of all breeders was as follows:

Month	*Number of eggs set*	*Number fertile*	*No. of chicks hatched*	*% fertility*	*% hatched for fertility*	*% hatched of No. set*
January ...	12,841	9,454	6,873	73.6	72.7	53.5
February ...	11,126	9,223	7,184	82.8	78.9	65.4
March ...	7,658	5,682	4,291	74.1	75.4	56.0
April	8,341	6,040	4,588	72.4	75.9	55.0
May	13,223	10,082	8,276	76.2	82.0	62.5
June	15,590	13,079	10,759	83.0	82.2	69.0
July	25,160	21,366	17,130	84.8	80.1	68.0
August ...	21,257	17,931	13,817	84.3	77.0	64.9
September ...	26,232	21,192	15,915	80.4	75.1	60.6
October ...	17,068	14,259	10,783	83.5	75.6	63.1
November ...	12,111	9,907	7,686	81.7	77.5	63.4
December† ...	10,545	3,961	3,234	72.3	81.6	59.0
Total ...	181,152	142,176	110,636	80.8	77.1	62.8

206. 9,315 eggs were set in December, 1967 and chicks came out in January 1968. Percentage worked for December 1968 has been calculated on 5,473 eggs set, as the difference (5,072 eggs) was set in December, 1968 and the chicks will come out in January, 1969 and will be reckoned for production in the year 1969.

207. The actual number of eggs set for the year 1968 is 181,152 less 9,315 eggs (which were set in December, 1967) but chicks came out in the year 1968 i.e. 171,837.

208. Though an improvement was recorded during the year in the overall fertility viz. 2.7 per cent, there has been a decrease in hatchability of fertiles and of all eggs set viz. 2.7 per cent and .04 per cent respectively. This is due to the fact that the air conditioner in the egg storage room which had been condemned since the begnning of the year has not yet been replaced.

209. The monthly performance of all parent stock, breedwise was as follows:

Month 1967	Parent Stock Cobb					Parent Stock Ledbreast Pilch				
	Number of eggs set	*Number fertile*	*No. of chicks hatched*	*% fertility*	*% hatched*	*Number of eggs set*	*Number fertile*	*No. of chicks hatched*	*% fertility*	*% hatched*
January ...	2,802	1,827	960	65.2	52.5	10,039	7,623	5,913	75.9	77.5
February ...	5,204	4,292	3,325	82.4	77.4	5,922	4,931	3,959	83.2	80.3
March ...	4,377	3,358	2,551	76.7	75.9	3,281	2,324	1,740	70.5	74.8
April ...	2,572	2,325	1,792	86.5	80.5	1,965	1,639	1,258	83.4	76.7
May ...	478	430	342	89.9	79.5	3,502	2,885	2,362	82.3	81.8
June ...	1,890	1,710	1,413	90.5	82.6	3,768	3,274	2,708	86.8	82.7
July ...	2,123	1,885	1,504	88.7	79.7	7,876	6,885	5,629	87.4	81.7
August ...	3,075	2,465	1,471	80.1	59.6	5,493	4,600	3,406	83.7	74.0
September ...	4,898	3,614	2,404	73.7	66.5	6,068	4,514	2,968	74.3	65.8
October ...	2,486	2,094	1,577	84 2	75.3	4,350	3,543	2,751	81.4	77.6
November ...	1,625	1,266	973	77.9	76.8	2,562	2,036	1,702	79.4	83.5
December ...	3,223	2,154	1,745	66.8	81.0	2,250	1,807	1,489	80.3	82.4
TOTAL ...	34,753	27,320	20,057	78.6	73.4	57,076	46,061	35,885	80.0	77.9

Month 1967	Parent Stock 7					Parent Stock 4				
	Number of eggs set	*Number fertile*	*Number of Chicks hatched*	*% fertility*	*% hatched*	*Number of eggs set*	*Number fertile*	*Number of Chicks hatched*	*% fertility*	*% hatched*
January	—	—	—	—	—	—	—	—	—	—
February	—	—	—	—	—	—	—	—	—	—
March	—	—	—	—	—	—	—	—	—	—
April	3,804	2,176	1,538	57.2	70.6	—	—	—	—	—
May	3,975	2,799	2,316	70.4	82.7	5,268	3,968	3,256	75.3	82.6
June	5,171	4,207	3,451	81.3	82.0	4,761	3,888	3,187	81.6	81.9
July	9,523	8,036	6,475	84.3	80.5	5,638	4,560	3,522	80.8	77.2
August	8,095	7,080	6,083	87.4	85.9	4,594	3,786	2,857	82.4	75.4
September ...	10,003	8,832	7,290	88.2	82.5	5,263	4,236	3,253	80.4	76.7
October	7,229	6,150	4,690	85.0	76.2	2,003	2,472	1,765	82.3	71.4
November ...	5,716	4,828	3,740	84.4	77.4	2,208	1,777	1,271	80.4	71 5
[illegible]	—	—	—	—	—	—	—	—	—	—

210. A review of the data compiled in respect of individual breeds/strains as given in the above table shows that " parent stock 7 " gave the best result of them all.

Import of New Stocks

211. To meet the demand for layers, the following were imported: 800 day-old " parent stock 7 " pullets and 120 " parent stock 7 " cockerels; 400 day-old " parent stock 4 " pullets and 60 " parent stock 4 " cockerels. These were supplied by Messrs. F. & G. Sykes.

212. To meet the demand for broilers 700 day-old parent stock Cobb's pullets and 105 day-old parent stock cockerels were ordered together with 300 day-old parent stock Ledbreast Pilch pullets and 45 day-old parent stock cockerels.

Artificial Insemination and Veterinary Aid Services

213. The number of Artificial Inseminations increased by nearly 400 and the average conception rate was 58.9 per cent as compared to 56.5 per cent in 1967. The Room Temperature Semen imported from Kabete was discontinued in January and the locally prepared Room Temperature diluent too had to be stopped at the end of March, the results obtained being unsatisfactory.

214. The other diluents used after March were whole or powdered milk and egg yolk and citrate buffer.

215. The same policy regarding the use of bulls as in 1967 was persued during 1968; semen from our Freisian bulls was used in Moka district, whilst semen from Creole bulls was used in the rest of the Island.

216. The following table shows the results of the artificial insemination campaign and the diseases encountered in the field.

Artificial Insemination	7,900
First Re-insemination	3,251
Other Re-insemination	1,896
Heat over etc.	2,373
Assessment for Pregnancy	1,846
Enucleation of Ovarian Cysts ...	256
Calcium, phosphorous deficiency ...	511
Calving troubles	507
Udder troubles	464
Digestive troubles	732
Miscellaneous	733
Total ...	20,469

XIII. Animal Health

217. The animal health picture of the Island continued to be unique and no new exotic animal diseases were recorded. No new cases of streptothricosis was recorded during the year. There were no deaths due to piroplasmosis.

Cattle

218. As in the previous year mastitis amongst milch cattle at various Government Livestock Breeding Stations continued to remain under control and no fresh cases were recorded. In the field, however, 464 cases of mastitis were reported and dealt with successfully. In addition 732 cases of digestive trouble were reported and dealt with accordingly. Other cases attended during the year by the Field Service were 507 dystokia, retention of placenta, prolapse of uterus etc.

Goats

219. The strength of Jumna pari goats at the Headquarters of the Division of Veterinary Services was 3 bucks, 7 females and 16 young kids (7 females and 9 males).

220. During the year 4 goats kidded 3 males and 4 females out of which 3 females died at birth. 3 adult bucks were sold to breeders.

Pigs

221. Save a few deaths (4) amongst the piglets which died of enteritis, no mortality arising out of sickness among the pigs was recorded.

Rabbits

222. The strength of rabbits was 38 Chincillas, 7 Californian White, 4 Flemish and 7 New Zealand White. Out of these 6 Chincillas were sold to breeders, 8 were transferred to Rodrigues and 4 Chincillas were provided to the Agricultural Extension Services.

223. Due to prophylactic treatment carried out, the mortality among rabbits due to coccidiosis was reduced to 37.9 per cent as against 42 per cent in 1967; as in the previous year Snuffles remained under control and no new cases were recorded.

Poultry

224. The Poultry Breeding Centre carried an average of 12,656 birds of all ages on a monthly basis and throughout the year production was stepped up by 4.16 per cent over the previous year viz. from 106,222 in 1967 to 110,636 chicks. The overall mortality in the adult stock was 10.56 per cent and in the group 0-12 weeks was 0.73 per cent.

225. The overall analysis of mortality was as follows:

	per cent
C.R.D.	2.9
Leucosis	12.7
Encephalomyelitis	0.3
Lung congestion	10.7
Avitaminosis, Rickets etc.	10.4
Coccidiosis	3.7
Unabsorbed yolk, parasitism etc. ...	59.3

Vaccination Campaign

226. Due to less demand the Vaccinators were not as active as in 1967; a total of 57,821 birds were vaccinated in the field. The following table shows the vaccinations performed by the staff of the Division of Veterinary Services districtwise:

Districts	*No. of Vaccine*		
	Newcastle		*Fowl Pox*
	Dead	*Live*	
Plaine Wilhems, Black-River, Port Louis ...	585	14,659	475
Plaine Wilhems, Black-River, Port Louis ...	75	6,214	—
Rivière du Rempart, Pamplemousses	2,135	6,381	1,450
Grand Port, Savanne	2,415	7,811	475
Flacq, Part of Moka	2,890	9,361	2,575
Plaine Wilhems	—	320	—
TOTAL ...	8,100	44,746	4,975

Tuberculin Testing

227. As a result of the change in policy Madagascar bullocks imported were subjected to T.B. Test in Mauritius. However, only 1,509 head of cattle could be tested up to 1.7.68, when the programme of testing these animals had to be stopped due to the resignation of the Veterinary Officer Out of 1,509 bullocks tested 106 gave a positive reaction, giving 7.2 per cent of tuberculosis among these animals.

Animal Quarantine Service

228. To prevent the introduction of infectious/contagious diseases into Mauritius the provision of the Animal Diseases Ordinance were rigidly applied to all imports of livestock and Livestock products. The quarantine kennels, the cattery and the Poultry Quarantine Unit at Reduit and the Animal Quarantine Station at Roche-Bois (near Port-Louis) were maintained.

229. To ensure against the introduction of any diseases through the importation of live goats from Madagascar, the slaughter of these goats was restricted to the slaughter house at Roche-Bois which is under the control of a fully qualified veterinary surgeon. Likewise, cattle from Madagascar were slaughtered only at slaughter houses of Roche-Bois, Rose Hill and Curepipe.

Livestock

230. Under the provision of the Animal Disease Ordinance 62 ships and 29 aircrafts carrying livestock were cleared by the staff of the Veterinary Services and all livestock whether for slaughter or breeding purposes was subjected to quarantine at the Quarantine Stations. During the year the following stock was received at the Quarantine Stations:

Country of Origin	*Bullocks*	*Sheep*	*Goats*
Madagascar ...	9,879	—	2,896
Rodrigues ...	424	1,139	1,956
Australia ...	—	1,974	252

231. In addition 185 cage birds from different countries were held in quarantine prior to release to importers. At Reduit 6 dogs and 2 cats imported from the United Kingdom, France and Uganda were held in quarantine for a period of 6 months from the date of arrival. 1,618 day-old chicks received from the United Kingdom underwent quarantine at the Poultry Quarantine Unit at Reduit prior to release to Poultry Breeding Centre. Frther 15,500 and 3,559 day-old chicks were imported from South Africa and Canad respectively by Messrs. Food and Allied Industries. 250 day-old chicks were imported from Ireland and 1,581 day-old chicks from the United Kingdom were imported by various breeders. All these chicks were sent to quarantine at the breeders' respective premises.

Livestock Products

232. During the year 1,275 import permits and 527 landing permits were issued. All frozen meat landed was subjected to veterinary inspection prior to release for sale. The following table summarizes the import of livestock products including frozen meats, offals, by-products of abattoirs and prepared livestock feed:

Frozen beef and beef products	833,582½	lbs
Frozen mutton and offals	1,169,138⅝	lbs
Frozen goat meat and offals	120,294	lbs
Frozen pork and pork products	312,043	lbs
Frozen poultry	387,762	lbs
Eggs	Nil	
Frozen turkeys, ducks & geese	8,071	lbs
Frozen rabbits	Nil	
Livestock feed (Poultry, pigs, cattle, rabbit, dog and horse)	11,374,104	lbs
Fish meal for livestock feed	162,000	lbs
Bone meal for livestock feeds	56,000	lbs
Meat meal	371,360	lbs
Lucerne	Nil	

Slaughter Data

233. During the year 1,985 calves, 1,321 cows inclusive of 108 slaughtered on humane ground and 2,283 bulls of the milch breed were slaughtered, producing 1,187,426 lbs. of beef. In addition 433 herd cattle and 377 bullocks imported from Rodrigues were slaughtered yielding 225,030 lbs. of beef. 10,625 bullocks imported from Madagascar were slaughtered and produced 3,340,334 lbs of beef.

234. Likewise 19,014 lbs. mutton and 293,437 lbs. goat meat was produced in Mauritius and another 189,410 lbs. from 4,906 imported goats and sheep giving a total of 501,861 lbs. 1,107,246 lbs pork was produced in the country, including pigs imported from Rodrigues. In these figures offals and preparations are not included.

235. The Slaughter House returns revealed the following average dead weight of imported and local cattle during the year:

Local herd cattle	282.4 lbs
Local milch cow	270.6 lbs
Local bulls of milch breed	201.2 lbs
Calves of local milch breed	186,6 lbs
Rodrigues cattle	272.4 lbs
Madagascar cattle	314.4 lbs

236. During the year 11 week-ends for slaughter of unproductive females of the local milch breed were authorised. During the same period 85 permits were issued for the slaughter of males of the milch breed for wedding and religious ceremonies. During the year, the Senior Veterinary Officer licensed 27 butchers to sell beef in meat shops licensed by the Ministry of Health.

Slaughter House Control

237. Under the Food Control Order 1,214 permits were issued for slaughter of unproductive cows of the milch breed as against 552 in 1967. In addition 108 animals of the milch breed were allowed slaughter on humane ground.

238. During the year 33 cases of illegal slaughter of females of the milch breed were examined and certificates issued to the Police Department.

239. Likewise, 10 cases of alleged cruelty to animals were examined and certificates issued to the Police Force.

240. From the Meat Inspection returns, 21 total and 699 partial seizures on account of bovine tuberculosis were reported among the Madagascar bullocks slaughtered at Roche-Bois, Rose Hill and Curepipe Slaughter Houses, giving 6.8 per cent of T.B. cases among a total of 10,625 heads slaughtered during the year.

241. In respect of the local stock of Zebu and milch animals, 15 seizures on account of bovine tuberculosis were reported, giving .2 per cent of T.B. cases among the total of 6,022 head slaughtered during the year.

Advisory Service

242. Officers continued to visit large and small livestock breeders for on-the-spot advice, and lectures, were delivered to Young Farmers.

Staff

243. Mr. J. C. Delaitre, Animal Husbandry Officer was transferred on promotion as Senior Agricultural Officer (Rodrigues).

244. The Veterinary Officer, Mr. Cheung Chin Yan, resigned from Service on 1st July, 1968.

Revenue

245. The various service rendered to the public produced revenue of Rs 385,366.84 compared to Rs 346,431.20 in 1967, the main sources of which were:

	1967	*1968*
	Rs cs	Rs cs
Sale of livestock, other than poultry ...	28,290.76	28,992.12
Sale of poultry, chicks, eggs etc.	185,119.68	212,089.19
Sale of vaccines and drugs	14,202.98	5,329.66
Quarantine Fees	100,568.83	94,971.77
Veterinary Fees	17,895.45	17,203.40
Miscellaneous	353.50	928.46
	346,431.20	383,366.84

XIV. The Animal Health Laboratory

246. During the period covered by this report, a total of 2,096 specimens was received at the Laboratory and subjected to pathological, bacteriological, parasitological and haematological examinations. These specimens included live animals, animal carcases, blood samples and blood films, skin scrapings, milk and faeces samples, and were submitted by Government centres, private owners and by the Police Authorities—Details of these examinations are given in Appendix.

247. Of the above 2,096 specimens, 186 were submitted by Government Centres as follows:

	Specimens	
Palmar Livestock Breeding Station ...	27	
Curepipe Livestock Breeding Station ...	33	
Roche Bois Quarantine Station ...	46	
Artificial Insemination Centre, Division of Veterinary Services, Reduit ...	68	
Arsenal Demonstration Centre ...	6	
Flacq Demonstration Centre ...	4	
OTHER CENTRES	12	
Poultry Breeding Centre	511+40	Blood samples (fowl) for C.R.D. Test (Chronic Respiratory Disease) Test
Fisheries Division Ministry of Agriculture & Natural Resources ...	25	
Private Owners	1,068+56	(specimens other than poultry *see tables*)
Police Authorities	9	

In addition 112 specimens (raw hide articles) imported by the public were submitted and subjected to sterilisation processes at the Laboratory prior to release. Other specimens including milk, faeces and blood samples and skin scrapings were collected by the Stock Inspectors (Field) and by the Laboratory staff in the course of surveys, so as to determine the incidence of disease of livestock and poultry in the island.

248. The work of the Animal Health Laboratory was mainly concerned with *(a)* General routine investigations *(b)* Animal disease surveys *(c)* Vaccine production and *(d)* Research.

249. General routine investigations involved pathological examinations of animal carcases (mainly poultry), bacteriological examinations of milk samples and animal tissues, microscopic examinations of faeces samples, pus, skin scrapings and blood films, and serological examinations of blood samples (Cattle and Poultry). The conditions diagnosed in routine examinations were similar to those encountered in the same period last year.

250. The incidence of the following diseases namely Respiratory disease, Leucosis complex, Coccidiosis, Vitamin B deficiency, Rickets, Parasitism (worms) and Unabsorbed yolk, seem to have decreased considerably at the Poultry Breeding unit, Reduit, in comparison with the preceeding years, as can be shown in the following table:

POULTRY BREEDING UNIT—REDUIT

Disease	*Year 1966*	*Year 1967*	*Year 1968*
Respiratory disease ...	628	93	94
Unabsorbed yolk ...	498	248	94
Leucosis	315	40	70
Vitamin B deficiency ...	131	12	8
Rickets	70	34	43
Coccidiosis	48	116	10
Worms infestation ...	42	37	3

251. Animal disease surveys involved microscopic examinations of milk samples, blood samples, blood films, skin scrapings etc. These specimens were collected mainly by the Stock Inspectors (Field) and by the Laboratory staff in the course of disease surveys.

252. Owing to the extremely reduced Laboratory staff this year—one Laboratory Technologist (on pre-retirement leave since the 1st October, 1968) the Stock Inspector acting as the Officer-in-charge and one girl classed as woman Labourer working at the Laboratory-disease surveys have had to be restricted and could not be carried out to their full extent.

253. The present staffing of the Animal Health Laboratory is as follows:

(1) One Stock Inspector, now performing the duties of the Laboratory Technologist since the 1st October, 1968.

(2) One Woman Labourer

(3) Three Laboratory Attendants.

(4) Two Labourers Class VIII.

Vaccine production was restricted to:

(i) Inactivated Newcastle Disease Vaccine; and

(ii) Fowl Pox Vaccine.

254. In addition to above vaccines, Live Newcastle Disease Vaccine was still imported twice every month from L'Institut de L'Elevage de Tananarive (Madagascar)—5,000 doses of Live Newcastle Disease Vaccine were received every forthnight.

255. The following represent the number of doses of each of the vaccines produced locally and issued during the whole year 1968.

	Inactivated Newcastle Disease Vaccine	*Fowl Pox Vaccine*
No. of doses produced	152,000	130,000
No. of doses issued (approx.) ...	97,100	93,060

LIVE NEWCASTLE DISEASE VACCINE (MADAGASCAR)

Doses received from Madagascar ...	85,000
Doses issued (approx.)	62,875

Research

256. A programme of investigation re. contaminated oysters was started in February, 1968, at the request of Dr. H. Fougère, Fisheries Adviser. The main object of this investigation was:

(1) To ascertain if oysters in Mauritius are generally contaminated.

(2) To ascertain how long highly contaminated oysters are required to be purged.

257. Twenty-five samples from several stations around the island e.g. Barachois Daruty, Barachois Melville, Barachois Ferney, Barachois Humbert-Poudre d'Or and Fish Farm Mahebourg, were submitted by officers of the Fisheries Division, to the Animal Health Laboratory for Bacteriological Examination:

(i) Samples of oysters picked up from these stations did not reveal either *E.coli* or *Salmonella,* but contamination was evident with other coliform organisms.

(ii) Examination of samples of oysters heavily contaminated with sewage water, revealed the presence of *E. coli* and *Salmonella.*

(iii) Heavily contaminated oysters, deposited in sea water at the Fish Farm Experimental Station, Mahebourg and examined at 24 hours, 2 days and 5 days intervals were found to be free from *E. Coli, Salmonella* and other coliform organisms.

Conclusion

258. These series of experiments lasted until July 1968 and proved that decontamination of heavily contaminated oysters was possible in 24 hours, when deposited in bacteriologically clean running sea water.

259. With reference to diseases in animals due to yeasts, 12 cases of Moniliasis (Sour crop) in poultry, usually due to *Candida albicans* were encountered in routine work.

XV. Land Settlement

260. In 1968 the Land Settlement Committee held one meeting during which cases of transfer of tenancies and other matters pertaining to settlements were considered. The Special Committee which looks after the selection of tenants met on three occasions, during which selections were made for lease of lands at Ilot Malais, Deux Frères, Bee Manique, Rivière des Créoles, Ville Valio, Belle Vue Phare, Pointe des Lascars and Petit Sable.

261. As in past years, officers of the Extension Services tendered advice to the tenants, in general, the holdings were in a satisfactory state of cultivation. Climatic conditions were not altogether favourable, the drought which prevailed early and late in the year had an adverse effect on the crops. The lack of a full time Land Settlement Officer since two years is proving a serious drawback on the supervision of the Land Settlements.

262. As has been the case in the recent years, rent collection has continued to be very unsatisfactory and has reached alarming proportions with a steady accumulation of arrears for tenants on many Land Settlements. Legal action has again been instituted against them.

263. At Terre Rouge, roads and irrigation canals were maintained. The additional eleven arpents of land are now ready for distribution to cultivators. The drought which prevailed towards the end of the year and the resulting stoppage of irrigation water have seriously affected the growth of the sugarcane on the Land Settlement.

264. The tenants of Vale and Belle Vue are cultivating their holdings satisfactorily.

265. The holdings at Palmar where sugarcane and miscellaneous foodcrops are grown were cultivated satisfactorily. A favourable planting season along with better use of fertilisers have helped in increasing yields of onion. Tomato planters again suffered owing to the fall in prices of tomato towards the last quarter.

266. Rep airs of roads and bridges at Bee Manique were completed. A few holdings are still in an abandoned state. At Petit Sable a road has been opened up through a plot of ten arpents of land with a view to parcelling the land and leasing out to prospective planters.

267. At Plaisance foodcrops and vegetables continued to be produced on a large scale.

XVI. Extension Services

Visits to Plantations

268. Over 7,000 visits were paid to sugarcane and vegetable growers, advice covering all aspects of the various crops grown was given, with special emphasis on the rational use of complete fertilisers for crops and the timely control of pests and diseases of economic importance in particular. In the drive to produce rice locally, special attention was devoted to giving encouragement in the field to rice planters. Their fields were regularly visited by the Extension Officers and advice tendered on the various aspects of rice cultivation. In general, planters were advised to apply complete fertilisers to all crops and special emphasis was laid on the right choice of compound fertilisers in respect of the crop grown; the need for crop rotation in relation to the control of pests and diseases and the use of good, healthy planting material in foodcrop production in general and in sugarcane cultivation in particular were also stressed to them. Work in the field also involved to a large extent advice in connection with the replacement of prohibited sugarcane varieties by recommended ones. For instance, in the sub-humid regions planters were advised to grow the varieties M. 13/56 and M. 377/56.

Demonstration Work

269. Demonstrations on the correct use of fertilisers on sugarcane were continued and 27 such demonstrations fields established in the previous year, were harvested and the results showed marked difference in favour of the use of complete fertilisers in the fields. 103 demonstrations involving mostly pesticides for the control of pests and diseases were laid down. Field visits were organised to allow planters to derive maximum benefit from those demonstrations.

270. Owing to the troubled conditions in the Country early in the year, the number of meetings which could be held with professional planters were reduced; only 67 such meetings were held, of which 38 for the benefit of small sugarcane growers. The main subjects which were reviewed were:

(a) The use of complete fertilisers on sugarcane and foodcrops, the timing and method of application and the use of compound fertilisers.

(b) Land preparation, right choice of varieties and planting material and proper time of harvest.

(c) The control of pests and diseases, the right choice of insecticides and fungicides and the precautions needed in the use of pesticides in general.

(d) The incidence of the virulent strain of gummosis on sugarcane, eradication of the susceptible varieties M. 147/44, B. 3337 and B. 34104 and their replacement by resistant varieties.

(e) Better utilisation of available land and soil conservation measures.

(f) The cultivation of rice.

271. Extensive use of visual aids such as slides, live specimens, films and leaflets was made at those lectures.

272. A series of lectures dealing with the general aspects of Agriculture was held in June. The lectures which were followed by practical field work were designed to provide basic training in agriculture to leaders of Rural Youth Clubs and were held simultaneously at the three centres at Centre de Flacq, Rivière des Anguilles and Arsenal. The courses which were spread over ten Saturday Sessions drew a regular attendance of about 50 leaders in all. It is intended to continue with such courses next year and after for the benefit of the Youth Leaders.

Propagation and Distribution of Cane Varieties

273. The drive to promote the plantation of recommended varieties and the eradication of varieties susceptible to gummosis is being maintained. The Service participated in the effort to propagate the recently introduced varieties and substantial amounts of the M. 377/56 particularly were planted on the Demonstration Centres for distribution to planters. Demands for the varieties M. 13/53 and M. 13/56 have been met largely by the Sugarcane Planters' Fund Nursery at Pointe aux Sables. A special drive was made in the effort

to promote the rapid adoption of the promising cane variety M. 337/56 on small planters' lands. In the middle of the year, planters were contacted and their interest was induced to plant that variety. With the co-operation of the Nursery at Pointe aux Sables, coupled with assistance in the way of provision of transport by the Service, some 15,000 canes were distributed to some 300 planters in small amounts for multiplication by the technique of Rapid Multiplication in view of subsequent large scale propagation. Practical demonstration was made by the Extension Officers on the technique of Rapid Multiplication.

Pests and Diseases

274. Owing to the abnormally dry year, the incidence of diseases generally speaking was low, although early in the year, following the heavy cyclonic rains, vegetable seedlings were severely affected by diseases and there was a high incidence of collar rot on cabbage. There were low incidences of blight on potato and the few cases of blight were successfully controlled. There was the occurrence of Bacterial Wilt, but on the whole the incidence of that disease was considerably lower than in 1967.

275. The dry spell which prevailed during the months of March—April gave rise to a proliferation of insect pests, for instance pod borers on peas and beans. In the late potato season, tuber moths, cutworms, aphids and red spiders were prevalent. In this connection it is expected that in future attacks from the tuber moth could be reduced to a large extent by heavier earthing up of tubers, as is now recommended.

276. The following pests were of common occurrence: red spiders, aphids, cutworms and tuber moths on potatoes; caterpillars on crucifers and fruits flies on creepers, tomato and fruit trees. There were a few cases of nematodes on onion and ginger.

277. There were isolated cases of spotted borer on sugarcane but the attacks were generally mild. The incidence of scales on sugarcane particularly in the Petite Rivière and Pointe aux Sables regions continues to be severe.

278. With the gumming disease survey of sugarcane small holdings having been completed, attention was concentrated on a comprehensive survey of virgin cane plantations. Such a survey carried out over a number of years is expected to yield valuable information on what is actually going on in the field in the way of the trend and rate of varietal replacement and the rate of replantation. Some 65,000 arpents of sugarcane of small planters were thus surveyed.

279. No severe attack of Leaf Scald was observed on the susceptible variety M. 202/46. The dry year has not been favourable to the gumming diseases and very few systemic infections were observed on the susceptible varieties.

Foodcrops Growing in Cane Interrows

280. With the planters now conscious of the need for an increased intensification of foodcrops in the interlines of sugarcane, the year saw an increased interest in the aspect of diversification on both small holdings and sugar estates. Interest in the exploitation of the interlines of ratoon canes for such purposes, which has been a feature of the Nouvelle Decouverte region for many years, has recently spread and considerable amounts of foodcrops were planted in ratoon canes by planters notably those of Montagne Longue and by numerous sugar estates.

Permanent District Demonstration Centres

281 A substantial acreage of the Demonstration Plots was devoted to the cultivation of bananas, pine apple, manioc, sweet potatoes and fodder grasses to meet the demands of planters for planting material. Comparative demonstrations were laid down on the more important commercial crops and features of note were the fertiliser and varietal demonstrations.

282. Varietal demonstrations were put up with the potato varieties available. As last year, small plots of rice were planted for observation. Substantial portions of land were planted to pulses like dhool Kessari and mung with a view to assessing their crop potential as well as to stock seeds for distribution to planters. The propagation of the sugarcane variety 337/56 by the technique of Rapid Multiplication was continued. The production of plants of the more current fruit trees for sale is now a well established feature of work on the Demonstration Centres. Late in the year, the laying stock on the Demonstration Centres was replaced by stocks of the Hybrid 7 breed. This year too, conducted tours of the centres were organised for the benefit of planters in general and for members of Rural Youth Clubs in particular. The silo pits were not filled up this year, the operation having been discontinued because of the lack of response of cowkeepers towards silage. Rice seeds were sold to planters from all the Demonstration Centres.

Arsenal Demonstration Centre

283. 2,300 kgs. of foodstuff were produced. The canes of the M. 441/51 were sent to the factory as there was no demand for planting material of that variety from planters. Plants like carambole, fruit de cythere, mango and limon nain were produced on the Station. 129 plants were thus sold within the Produce More Food Campaign. The old stock of laying poultry was replaced in December with a new batch of 18 Hybride 7 chicks. A small experiment on rice under overhead irrigation conditions failed because of the severe drought towards the end of the year and the consequent stoppage of irrigation water. The new livestock units to house cows, goats, poultry and rabbits was completed.

Mapou Demonstration Centre

284. Some 150 fruit trees were produced and sold within the Produce More Food Campaign. Milk production amounted to 1,000 litres and eggs to 2,600 units. Planting material of manioc and sweet potatoes were supplied free of charge to the public. A feature of the Demonstration Centre was the plantation of pulses, namely beans, dholl Kessari and mung for ovservation

Vacoas Demonstration Centre

285. Intensive cultivation of vegetables and foodcrops was carried out. The centre specialises in the production of market garden crops on a commercial basis. In spite of an excess of rainfall at the beginning of the year and of a severe drought at the end, 8,324 kgs of foodcrops were produced and the sales amounted to Rs 2,424.68.

Riviere des Anguilles Demonstration Centre

286. 2,056 kgs of foodstuff were produced. 11.5 tons of sugarcane were harvested and sent for milling. 109 fruit plants and 2,417 eggs were sold on the Demonstration Centre. About 5,000 pine apple suckers, 700 manioc cuttings, 25 banana suckers and sweet potato vines were distributed to planters free of charge within the Produce More Food Campaign. 23 rabbits and one Anglo Nubian goat were sold to breeders. In the pulse trial that was laid down, the Red Local bean outyielded the other pulses viz. mung, dholl Kessari, lentil and the local pea.

Centre de Flacq Demonstration Centre

287. 711 fruit trees were sold during the year, of which 200 were produced on the station. One bull calf was sold to a breeder and eleven does belonging to private breeders were served by the Anglo Nubian Buck on the station. The steep riverside has been terraced in part and planted with pine apple and fruit trees. Some 9,000 pine apple suckers and 50 banana suckers were supplied to Rural Youth Clubs of Camp de Masque Pavé and Lallmatie. The station participated actively in the propagation of sugarcane variety M.377/56 and substantial amounts of cane were supplied to other centres and to planters of the district. The Mauritius Sugar Industry Research Institute laid out on a plot of the centre, a potato variety trial designed to test the resistance of some varieties to Bacterial Wilt.

Plaisance Demonstration Centre

288. 1,119 kgs of foodstuffs were produced on the Demonstration Centre. 15 tons of cane were harvested and sent for milling. 127 fruit plants and seedlings were sold. One Anglo Nubian Buck produced on the station was sold to a breeder. 543 eggs were produced. Banana and pine apple suckers, manioc and sweet potato cuttings were distributed free of charge to growers.

Assistance to Small Growers

289. With a view to enabling more accurate recommendation as to the application of nitrogen, phosphate and potash on the fields of individual planters, a start has been made in the determination of the status of those nutrients in lands due for replantation. The determinations which include that of pH as assessed through soil samples assist in recommending the right type and amount of fertiliser to be applied on an individual basis. 20 such determinations were carried out during the year.

290. The drive to encourage rice production was intensified. Applications for seeds were invited and seeds were sold from the Extension offices all over the country. The rice planters were issued with leaflets on the cultivation of rice and the Extension Officers followed plantings in the field by giving the necessary advice.

291. Action has started on the initiative of the Extension Officer of Flacq towards grouping the planters of the region of Mare d'Australia in a Co-operative for the intensive exploitation of the area under rice. The area needs to be provided with good road facilities and facilities for the control of water and, to that effect, the co-operation of interested organisations like the District Council and the Ministry of Health and Co-operative Department has been sought. It is expected that with their co-operation, work in connection with the improvement of the field roads and the opening up of suitable main drains will start soon. The Ministry of Agriculture will give help by way of providing weedicides to clear the drains. Such a scheme is expected to open up a considerable area hitherto underutilised for intensive rice growing.

292. Although school vegetable gardens tend to disappear through lack of funds for their maintenance, the schools are nevertheless growing fruit trees and ornamentals, which demand less attention. Following the survey in connection with the comprehensive project of planting fruit trees and ornamentals in all primary school yards most of the schools have now been supplied with those plants. During the year, visits were paid to the schools and the necessary advice given.

293. The Poor Institutions received the regular visits of the Extension Officers who gave advice on general farming matters and delivered various vegetable seeds to them.

Liaison with the Mauritius Sugar Industry Research Institute

294. The close contact established between the officers of the Extension Services and those of the Mauritius Sugar Industry Research Institute was maintained throughout the year. The following talks delivered at the Institute were attended by officers of the Extension Services:

13. 2.68	...	Revue des travaux du M.S.I.R.I. en 1967
19. 3.68	...	La fertilisation de la canne
30. 4.68	...	Les resultats preliminaires obtenus dans les experiences faites sur la culture du tournesol en entre lignes de canne a sucre.
21. 5.68	...	Resultats d'experience sur le controle de la floraison
16. 7.68	...	Differents aspects de l'instrumentation dans les sucreries de Maurice
20. 8.68	...	Nutrition de la Canne a sucre
26.11.68	...	Les varietés de la canne a sucre

Miscellaneous Activities

295. The " Produce More Food Campaign " has now been extended to practically all villages of the island with all requests within the scheme being entertained. As in recent years, efforts were mainly directed towards the growing of fruit trees, with a special emphasis laid this year along an effort to stimulate the home production of pulses like mung and dholl. The greatest interest who shown by the villagers of Camp de Masque Pavé who were supplied with 675 fruit trees during the Youth Week Celebrations held in May.

296. 1,463 fruit trees were delivered to villagers, transport being provided by the Extension Service. Planting material of pine apple, banana, sweet potato, manioc, etc. were supplied free within the campaign. The Rural Youth Clubs participated in the effort to produce more food by planting pulses like mung and dholl from seeds supplied by the Extension Service. Three Anglo Nubian bucks were sold to breeders for upgrading of their livestock and 30 buck services were effected at the Demonstration Centres to she goats brought in by breeders.

297. Following the start in the formation of Rural Youth Clubs yast year, those Clubs are now on the way to becoming well established. Close co-operation was maintained with the Youth Service Division of the Ministry of Education in order to establish them on a firm footing. While the organisational side was the responsibility of the Youth Service, the Service helped by giving technical advice on various aspects of crop growing. Lectures were delivered regularly for the benefit of the members and conducted tours were organised to centres of agricultural interest.

298. The Service participated in May in the Youth Week Celebrations organised by the Youth Service Division. In this connection, conducted tours were organised to see group project of three clubs in Moka—Flacq, which were ended by a big Youth Rally held at Camp de Masque Pavé where a large scale supply of fruit trees was made followed by planting demonstrations. Late in the year a series of lectures on the growing of pulses was delivered to the Youth Clubs which were issued with seeds of mung for planting.

299. Under the FAO/UNICEF/WHO Agricultural Extension and Home Economics Programme which was launched in 1966, the Extension Division participated in a Refresher Courcse provided for the benefit of Social Welfare Officers. Two lectures designed to increase interest in home food production were given.

300. The interest of cowkeepers in the feeding of silage to their livestock continued to be very poor inspite of continued efforts to make them aware of the help to be obtained therefrom in the periods of fodder shortage. The scheme of filling silo pits has accordingly been discontinued and no silo pits were filled during the year.

301. Some 1,313 arpents of land were put under potato during the year. The yield was low with the early plantings due to the drought which prevailed then, but planting conditions became favourable afterwards; consequently low incidences of attack by blight which, coupled with better use of fertilisers and better pest control measures, gave rise to high yields. It is to be noted that there were heavier plantings than usual during the period May to June which resulted in one single peak of production, a change away from the pattern of two peaks of production which has been a feature of potato production for many years. A noteworthy aspect of the production of that crop again has been the increased participation of sugar estates in their efforts towards diversification. The total production of potato was 9,578 tons at an average record yield of 7.3 tons per arpent.

302. Various surveys were conducted during the year, including:

1. Assessment of Crown Lands for Rental Value and suitability for agricultural development.
2. Survey of virgin plantations to determine rate of replantation and trends in the replacement of outdated varieties.
3. Assessment of damage done to crops as a result of indiscriminate use of herbicides.
4. Survey of fields in connection with their suitability for rice growing.
5. Investigation of fodder problems.
6. Recording of statistical data for foodcrops under harvest.
7. Assessment of potato and onion acreages grown and production for the Agricultural Marketing Board.
8. Weekly recording of market prices for vegetables.
9. Estimation of annual foodcrop and fruit harvest.

XVI. Foodcrops

303. The following tables were prepared from data collected by the Extension Service:—

AREA HARVESTED (ARPENTS)

Year	Maize	Manioc	Arouilles	Sweet Potatoes	Groundnuts	Irish Potatoes	Beans & Peas	Pine Apples	Brinjal	Tomatoes	Ginger	Creepers	Mixed Vegetables	Bananas	Total
1967	662	64	75	40	671	1,333	685	113	327	1,844	119	1,451	1,420	984	9,788
1968	429	32	88	44	514	1,313	601	116	315	1,904	110	1,180	1,540	1,038	9,224

ESTIMATED AVERAGE YIELD KGS/ARPENT

1967	690	7,094	5,333	5,825	1,310*	6,901	1,058	4,336	5,804	5,666	8,151	6,438	5,335	10,025	—
1968	876	7,531	5,205	6,091	1,230*	7,295	1,085	5,741	5,949	4,611	8,018	6,785	4,693	10,369	—

ESTIMATED TOTAL COMMERCIAL PRODUCTION (METRIC TONS)

1967	457	454	400	233	879	9,199	725	490	1,898	10,449†	970	9,342	7,575	9,865	52,936
1968	376	241	458	268	632	9,578	652	666	1,874	8,780	882	8,006	7,227	10,763	50,403

*Green Weight.

†About $\frac{1}{8}$ of the total production did not reach the markets.

The area shown above was effective acreage harvested and includes the aggregate acreages of different crops grown on the same land in one year, as well as foodcrops interplanted with sugar-cane.

XVIII. Experiment Stations

Curepipe Experiment Station

Development

304. *(a)* Land reclamation work continues. 1½ acres of uncultivated land under bush were reclaimed and planted under fodder.

(b) 1,000 feet of new access roads, 12 feet wide, were made on the station and this has greatly eased the transport of materials by lorry and tractor-trailer to and from several fields.

Fodder

Introduction Plots

305. No new introduction of fodder grasses was effected in 1968.

306. *Vigna marina,* first sown for observation on 1.9.67, has shawn to be promising leguminous species; however, it has flowered abundantly on several occasions but produced no seed.

307. A fertilizer trial on *Setaria sphacelata* var. Bua River was planted on 17.10.63. The treatments were: 2 rates of Nitrogen Viz. N_1—40lb and N_2—80 lb N. per acre, applied as sulphate of ammonia after each cut and in conjunction with annual applications of:

(a) B_1=40 lbs K_2O per acre as sulphate of potash plus 40 lbs P_2O_5 per acre as single superphosphate.

(b) B_2=80 lbs K_2O per acre and 80 lbs P_2O_5 per acre.

308. The trial consisted of 4 replications and the plots were randomized.

309. 4 cuts of fodder were made during the year 1968 on 1.2., 8.3., 28.4. and 5.12. Results obtained were as follows:

Treatments	N_1B_2	N_2B_1	N_2B_2	N_1B_1
Yield per ton per acre per year of fresh material ...	26.24	24.82	23.79	22.34

L.S.D. @ 5% ± 7.26 tons per acre.

Conclusion: No significant difference in yields for the treatments have been obtained.

310. An experiment to assess the value of Calcium silicate and Coralline Sand on the growth and yield of *Setaria sphacelata* var. Bua River was laid down on 8.12.67. The rates of applications were Calcium Silicate 3 tons and 6 tons per acre respectively and Coralline Sand 4 tons per acre: they were applied at time of planting. A top dressing of the fertilizer mixture 2:2:1 at 220 lbs per acre was given on 30.12.67 to all the plots.

311. After each cut 110 lbs per acre of Sulphate of Ammonia was given. Seven cuts were made in 1968 (on 5.2, 28.2, 3.4, 6.5, 5.6, 18.7, and 19.11).

312. The total average yields of fresh fodder per acre per year for the different treatments were:

Ca Si_1	52.59 tons/acre
Sand	51.03 „
Ca S_2	50.63 „
Control	50.19 „

L.S.D. — 5% ± 2.52 tons/acre.

Conclusion: No significant difference between treatments has been found.

313. A weeding trial on *Setaria sphacelata* planted at a uniform spacing of 12 ins. × 18 ins. in the previous year was cut 5 times during 1968. The treatments were:

(a) Weeding after each cut.

(b) Occasional weeding—weeded 3 times during the year.

(c) No weeding.

314. The total yields per acre per year of fresh fodder were as follows:

(a) Occasional weeding : 34.30 tons.
(b) Weeding after each cut : 31.78 tons.
(c) No weeding : 30.62 tons.
L.S.D. @ 5% ± 3.73 tons/acre.

Conclusion: Occasional weeding of grass plot has given the best result. There is practically no difference between treatments " weeding after each cut " and " no weeding ".

Miscellaneous

315. 638 tons of green fodder were supplied to Curepipe Breeding Centre during the year 1968.

316. 270 tons of fresh sugarcane tops together with 172 tons of sugarcane top silage were supplied to Livestock Breeding Centre.

Orchard Crops

Citrus

317. *(a)* Mandarin seedlings planted in the year 1958 again produced a good amount of fruits. The average yields of fruits for the different varieties were:

Variety	*Av. No. of fruits per tree*	*Av. Wt. of fruits per tree*	
		lbs	*oz*
Djercœk Kœprœk Pœnten ...	120	14	15
Djercœk Kœprœk Garœt ...	30	3	11
Empress	42	6	3
Local	37	5	3

Grapefruit

318. Grapefruit var. Juddoo again produced a good number of quality fruits.

319. 7 grafted plants grown in 1964 produced in all 539 fruits weighing 166 lbs.

Guava

320. 60 guava trees of different varieties growing at the station bore heavily. The yields were as follows:

Total No. of trees	*Variety*	*Av. No. of fruits per tree*	*Av. Wt. of fruits per tree*	
			lbs	*oz*
51	South African White ...	338	63	6
8	B.E.S. Selection ...	317	63	2
1	Olive type	423	74	2

Persimmon

321. Several persimmon plants of local variety produced a good quantity of rather small and acid fruits.

Rice

322. A variety trial of rice with 3 varieties e.g. TN_1 YRL_1 and YRI_2 sown on 30.11.68 and transplanted on 27.12.68 consisting of 6 randomised blocks was laid down. Two seedlings were planted per hole and the spacing was 9 ins. × 9 ins.

323. The object of the experiment is to find suitable rice varieties for the upland conditions of Mauritius.

324. Before sowing, the seeds were pre-germinated and the seed beds were treated with the following chemical fertilizers:

Sulphate of ammonia	...	330 lbs per acre
Triple superphosphate	...	66 lbs per acre
Sulphate of potash	...	66 lbs per acre

Furthermore the seed beds also received about 10 tons of compost.

325. Before planting, the trial plots measuring each 20 ft × 10 ft were uniformly treated with 220 lbs per acre of sulphate of ammonia, 330 lbs per acre triple superphosphate and 125 lbs per acre of Muriate of potash. On 12.1.69 the plantation received 44 lbs per acre of Sulphate of Ammonia and on 6.3.69 at flowering time, 110 lbs per acre of the same chemical.

326. The crop will be ready for harvest in April 1969.

327. A trial with Rice var. Begami sown on 23.11.67 was transplanted on 19.12.67 at 2 seedlings per hole spaced 9 ins. × 2 ins.

Treatment

328. *(a) Nursery*: (i) Pre-germinated seeds sown on raised beds in drills 12 ins apart.

(ii) Applied $\frac{1}{2}$ lb of each of Sulphate of Ammonia, triple superphosphate and muriate of potash, for each pound of seed, on the beds before sowing.

(iii) Seed rate 22 lbs/acre of field.

(b) Field: Worked on contours at 1 ft vertical interval and raised bunds for keeping water. The soil on the floor was forked, puddled, levelled and the following fertilizer mixture applied before planting the seedlings:

Sulphate of ammonia	...	550 lbs per acre
Triple superphosphate	...	110 lbs per acre
Muriate of potash	...	440 lbs per acre

Five weeks after transplantation the following fertilizer mixture was applied:

Sulphate of ammonia	...	220 lbs per acre
Sulphate of potash	...	160 lbs per acre

329. It was observed that leaf miners and caterpillars attacked leaves of rice plants and appropriate insecticides, e.g. aldrin and bidrin, were sprayed.

330. Minor cricket damages were also found as well as damages by rats. Racumin effectively controlled the rats.

331. The crop flowered on 15.1.68 and the grains formed on 14.2.68. Harvest was effected on 8.3.68: the yield of cleaned and sundried paddy was calculated to be 1.250 tons per acre.

Colocasia sp.

332. A 3^3 factorial fertilizer trial with *Colocasia esculenta* var. ' carri ' was planted on 2.6.67 and harvested during the period from 22.2 to 28.2.68.

333. A uniform basic application of farmyard manure at the rate of 1 ton per acre was applied at time of plantation.

334. The rates of chemical fertilizers were 0,30 and 60 lbs per acre of N, P_2O_5 and K_2O in the form of sulphate of ammonia, triple superphosphate and sulphate of potash.

335. The yields of freshly harvested roots were as follows:

(Calculated to tons per acre)

	N^0			N_1			N_2				
	P_0	P_1	P_2	P_0	P_1	P_2	P_0	P_1	P_2	*Total*	*Means*
K_0 ...	4.59	3.72	3.29	3.72	4.33	3.46	3.81	3.29	3.81	34.02	3.78
K_1 ...	2.34	4.51	3.72	4.07	2.86	3.98	3.98	5.72	2.60	33.78	3.75
K_2 ...	2.25	3.89	4.51	5.54	3.20	3.98	5.80	5.28	3.64	38.09	4.23
Total ...	9.18	12.12	11.52	13.33	10.39	11.42	13.59	14.29	10.05	105.89	—
Means ...	3.06	4.04	3.84	4.44	3.46	3.81	4.53	4.77	3.35	—	3.92

	N_0	N_2	N_3	*Total*	*Means*
P_0 ...	9.18	13.33	13.59	36.10	12.03
P_1 ...	12.12	10.39	14.29	36.80	12.27
P_2 ...	11.52	11.42	10.05	32.99	11.00
Total ...	32.82	35.14	37.93	105,89	—
Means ...	10.94	11.71	12.64	—	11.21

L.S.D. @ 5% : ± 0.78 T/A
L.S.D. at 1% : ± 1.09 T/A
Yield of control : 4.59 tons/acre

Conclusion: The results show significance at both levels of N at 5 per cent level but no significance to P and K.

336. A spacing trial with *Colocasia esculenta* var. 'Carri' was planted on 18.7.67 and harvested on 29.2.68. The spacings were $2\frac{1}{2}$ ft × 1 ft, 3 ft × 1 ft and 2 ft × 1 ft. A uniform fertilizer treatment of farmyard manure 10 tons per acre, sudphate of ammonia 150 ibs per acre, Triple superphosphate 100 lbs per acre and sulphate of potash 100 lbs per acre was applied.

337. The results obtained were as follows:

Spacings	*Mean Yield in tons of fresh roots per acre*
(a) 2′ × 1′	3.57
(b) $2\frac{1}{2}$′ × 1′	3.28
(c) 3′ × 1′	2.73

L.S.D. @ 5% ± .52 Tons/acre

338. There was not much difference in yields between treatments *(a)* and *(b)* and both gave significantly higher yields than treatment *(c)*.

Sweet Potato

339. A summer plantation of 6 varieties of sweet potato was made on 23.10.67 The varieties were Pelican Processor, Patate Raisin, Violette, Joes, Mirbelle and Patate Rouge. The planting material consisted of sweet potato vines 1 ft in length which were planted on mounds 3 feet apart and 1 foot distant on the mound with 2 vines per hole. A uniform treatment of farmyard manure at 5 tons, sulphate of ammonia at 200 lbs triple superphosphate at 200 lbs and sulphate of potash at 100 lbs per acre was given at time of planting and the plots were randomized. The crop was harvested at the end of April 1968 giving the following yields of fresh roots:

Variety	*Yield Tons per acre*
Violette	3.36
Pelican Processor	2.87
Joes	2.76
Patate Rouge	2.75
Patate Raisin	2.58
Mirbelle	1.79
L.S.D. @ 5% = ± 0.51 ton/acre	
1% = ± 0.67 ton/acre	

340. A similar trial with the same treatments was planted on 10.4.68 for comparing the performance in the winter. It was harvested on 16.10.68 giving the following results:

Variety	*Yield tons per acre*
Violette	2.67
Joes	1.55
Mirbelle	1.26
Patate Rouge	1.19
Patate Raisin	.74
Pelican Processor ...	.73
L.S.D. @ 5% ± .54 ton per acre	
1% ± .75 ton per acre	

Conclusion: Variety Violette has given best yield both in summer and winter. Pelican Processor has shown to be a good variety to be grown in summer but its performance in winter is poor. Mirbelle has done better in winter as compared to Patate Rouge, Patate Raisin and Pelican Processor than in summer.

341. A total of about 4 acres were grown under pumpkin, Calabash, Squash, Cucumber, Luffa and Snake Gourd for seed production.

342. Various vegetables such as cabbages, cauliflower, lettuce, miscellaneous creepers, beans and peas were also grown as crop rotation and the produce sold to the public. The total revenue collected in 1968 from the sale of various produce of the station amounted to Rs 3,918.94 and the items of sale were as follows:

	Rs
Miscellaneous vegetables ...	1,379.49
Various fruits	2,443.25
Duck Eggs	29.20
Ducklings	42.00
Geese	25.00
TOTAL ...	3,918.94

Livestock

343. Keeping of ducks and geese in association with the fresh water fish ponds was continued. 7 ducks and 3 geese were sold during 1968. A total of 399 duck eggs were produced. The number of birds in hand at the end of the year was 16 ducks, 9 ducklings, 7 geese and 12 goslings.

344. The black swans received from the Australian Government in 1958 did not lay any egg during 1968.

Miscellaneous

345. The total rainfall during the year 1968 amounted to 117.38 inches as compared to last year's total of 146.12 inches. The wettest months were February, March and the driest May, June.

346. A total of 1,386 tons of farmyard manure was supplied to the various stations of the Department as well as to other Departments and Ministries.

Plaisance Experiment Station

ORCHARD SECTION

Citrus

347. The yield of the 3 best plants of the various orange varieties are as tabulated hereunder:

Variety	*Field No.*	*Tree No.*	*Total No.*	*Total Weight*
Pineapple ...	F4	4	164	127 lbs 14 oz.
do ...	—	9	86	69 lbs 2 oz.
do ...	—	10	107	68 lbs 8 oz.
Washington Navel ...	F8	2	133	144 lbs 9 oz.
do ...	F8	4	118	103 lbs 9 oz.
do ...	F4	12	129	96 lbs 8 oz.
Parson Brown ...	F8	1	179	98 lbs 12 oz.
do	F8	1	149	77 lbs 12 oz.
do	F8	9	137	69 lbs 7 oz.
Navalencia ...	F8	23	184	183 lbs
do ...	F8	10	174	120 lbs 2 oz.
do ...	F8	12	155	108 lbs 9 oz.

A total of 11,150 fruits of the different varieties were harvested in 1968.

Ginger

348. A 3^3 factorial fertilizer trial planted on 10.11.67 was harvested on 6.8.68. The plantation received a basic dressing at time of planting of 10 tons farmyard manure per acre. Phosphate in the form of single superphosphate at the rates of 0, 36 and 72 lbs P_2O_5 per acre was given at planting time. Potash as sulphate of potash at the rates of 0,50 and 100 lbs per acre was applied half the amount at planting time and the remaining half in mid-February 1968. Nitrogen in the form of Sulphate of ammonia at the rates of 0,40 and 80 lbs N per acre was applied half in late December, 1967, and the remaining half in mid-February, 1968.

349. The following results in tons of Ginger per arpent were obtained:

	N_0 (o)			N_1 (40lb)			N_2 (80lb)			Total	Means
	P_0	P_1	P_2	P_0	P_1	P_2	P_0	P_1	P_2		
K_0 (o) ...	13.21	14.01	14.67	11.67	14.50	10.19	12.72	13.77	14.83	119.59	13,29
K_1 (50 lbs) ...	11,51	10.37	11.10	12.64	12.15	15.80	13.21	18.80	15.96	121.54	13.50
K_2 (100 lbs) ...	14.34	13.13	11.75	14.42	15.31	15.39	10.78	10.21	10.81	116.14	12.91
Total ...	39.06	37.51	37.52	38.73	41.96	41.38	36.71	42.78	41.60	357.25	—
Means ...	13.02	12.50	12.51	12.91	13.99	13.79	12.24	14.2613,87		—	13.23

	N_0	N_1	N_2	Total	Means
P_0 (o) ...	39.06	38.73	36.71	114.50	38.17
P_1 (36 lbs) ...	37.51	41.96	42.78	122,25	40.75
P_2 (72 lbs) ...	37.42	41.34	41.60	120.50	40.17
Total ...	114.09	122,07	121.09	351.25	—
Means ...	38.03	40.69	40.36	—	119.09

L.S.D. at 5% = 2.43 T/A

Conclusion: The results show significance in the case of first levels of N and P treatments but no significance in the treatment with K.

Coconuts

350. Coconut trees of Malayan Dwarf varieties planted in May, 1963, and variety Pemba planted in January, 1962, produced quite a good number of nuts. Average yield figures for 1968 for the five best plants were as follows:

	Nuts
Pemba	86
Malayan dwarf green ...	106
Malayan dwarf yellow ...	101
Malayan dwarf red ...	74

351. The following quantity of ripe coconuts for seed were sent to Barkly Experiment Station:

Variety	*No. of Nuts*
Malayan dwarf green ...	1,922
Malayan dwarf yellow ...	2,708
Malayan dwarf red ...	1,565
Pemba coconut ...	3,414

Litchi

352. Of the 75 layers of litchi selection No. 8 of Barkly planted in March 1963, 20 flowered and 5 produced fruits most of which dropped during the severe drought. The few fruits left on the trees did not grow to full size and were damaged by birds.

Pineaple

353. A 3^3 fertilizer factorial trial with single replication with variety "Queen Victoria" was planted on 29.6.68 with spacings of 4 feet between twin-rows distant 18" from one another and 18"in the row. The planting material consisted of suckers which were dipped in a solution of folithion (1cc. per litre) and the rate of planting was one sucker per hole. The fertilizers were applied at planting and the rates per acre were as follows:

Nitrogen in the form of Sulphate of ammonia, 0,100 and 200 lbs.

P_2O_5 as triple superphosphate: 0,150 and 300 lbs.

K_2O as sulphate of Potash 0,150 and 300 lbs. respectively.

Harvest of fruits are expected in 1969.

Mangoes

354. The mango orchard, comprising 276 trees in all, was cleaned of all weeds, chemical fertilizers applied around the trees which were mulched with dry leaves for keeping moisture. Trees attacked by the mango borer*Batocera rufomaculata* were treated with *dieldrin*. Dead branches from all the plants were removed and some trees of Dauphine variety pruned. The inflorescence were sprayed with phaltan to control anthracnose.

355. In spite of the severe drought prevailing during the fruiting season, a good harvest of mangoes was produced. A total of 108,500 fruits were obtained of which 96,000 seeds were sent to Barkly and Pamplemousses Nurseries for propagation.

Miscellaneous fruit trees

356. The 4 plants each of Custard apple and Bullocks Heart planted in May 1966 produced a few fruits which were quite palatable.

Seed Production

357. Plantations were also made for the production of seeds for sale to the public from our nurseries. The acreage and the amount of selected fruits or seeds produced during 1968 are tabulated below:

	Acreage	*Amount af seeds*
	Acre	
Bringelle Rosita	.06	65.000 kg. of fruit
Cowpeas	.09	10.500 kg. seeds
Garlic	.03	246.000 kg. of bulbs
Lettuce var. mignonette ...	.14	2.500 kg. seeds
,, ,, Sucrine ...	.05	1.000 kg. ,,
,, ,, Webb's wonderful	.01	.050 kg. ,,
Peas var. greenfeast ...	.12	30.000 kg. ,,
,, ,, Local	.46	53.500 kg. ,,
Tomato var. Marglobe ...	.13	80.800 kg. fruits

All the above-mentioned fruits and seeds were sent to Barkly Experiment Station for processing before sale.

Central Sxperiment Station

Citrus

358. The different kinds of citrus in the 2½ acres citrus grove were maintained. Fertilizers were applied to all plants according to their age; irrigation was carried out, both surface and overhead. Spraying with Maneb, M. 45, Soltosan, Bidrin and Fitios were done as and when required. The plants suffered from drought from August to November.

359. There was great variation from plant to plant, in yield of fruits among the thirteen year old Mandarine seedlings introduced from South Africa (i) Seventeen plants of variety Empress produced 895 fruits varying from 4 to 290 per plant (ii) sixteen plants of variety Fagan produced 441 fruits varying from 1 to 157 .(iii) Eleven plants of variety Djeroek Keproek Poenten produced 450 fruits varying from 1 to 131 fruits per plant (iv) Thirteen plants of Djeroek Garoet produced 202 fruits varying from 1 to 69 fruits per plant.

360. Three year old local Mandarine budded on Florida Rough Lemon and planted among plants of the introduced varieties of Mandarines from South Africa produced fruits varying from 1 to 178 fruits per plant.

361. Five plants of 13 years old Vangasailles produced 1,800 fruits.

362. The two rows of local grapefruits which had been planted a year ago to replace the Marsh Grapefruit plants were growing well.

363. Out of twenty-two thirteen- year old Java Grapefruit seedlings only 9 produced a total of 522 fruits. Four plants of grafted local Grapefruits (Juddoo) seven years old, produced 1,800 fruits among which one plant producing as many as 760 fruits.

364. Sixteen thirteen-year old semineole Tangelo Seedlings produced 3,850 fruits. There were some plants with " Greening " which explains the reduced yield. Four thirteen-year old Mineole Tangelo produced 136 fruits.

365. Eleven twelve-year old Parson Brown Oranges, crown grafted on Waterkloof sweet orange, gave a total yield of 3,252 fruits, individual yields varying from 79 to 604 fruits.

The quality of the fruits from these plants compared with those of Parson Brown Grafted on Florida Rough Lemon seems to be superior.

366. Twelve thirteen-year old Navel Oranges produced 3,158 fruits varying from 54 to 427 fruits per plant.

367. The thirteen year old Waterkloof sweet orange seedlings did not produce any fruit.

368. Twelve seven-year old Navalencia oranges, budded on Florida Rough Lemon, produced a total of 756 fruits, an average of 63 fruits per tree.

369. The yield of thirteen year old Valencia and Parson Brown Oranges grafted on Florida Rough Lemon gave the following results 17 out of 23 plants of Parson Brown grafted Rough Lemon produced 4,865 fruits varying from 48 to 398.

370. 50 seven-year old Navel oranges budded on Citron Galeux produced 6,984 fruits varying from 38 to 260.

371. Cyclone Ida and Monique were responsible for heavy fruit drop. "Canker" caused great damage to fruits. Spraying was done to control white fly and mites. In general the citrus plants flowered heavily.

372. For propagation purposes budwoods were taken from seedlings of the imported variety of Mandarine Djeroek Keproek Poenten as well as from Java Grapefruit; Semineole and Mineole Tangelos.

373. As in the past Navel oranges were the first to flower. Valencia and Parson Brown Oranges were late to flower.

Banana

374. Two different blocks were planted to Banana in collection plots of the following varieties: Naine, Ollier, Kisukari, Tahiti, Mille, Faux Gingeli, Nouvelle France, Hybrid Ducasse and Philibert. Suckers were used as planting materials which were planted at a spacing of 10 ft. $\times$ 10 ft.

Peach

375. There was satisfactory growth of the eight varieties of peach which were crown grafted on local peach root stock last year, namely King Edward, Angel C.E.S. Florida Crawford, Babcock, Teton de Venus, Angel (old) B.E.S. Hall's Yellow, Alexander Jewel. They produced fruits but all fruits were attacked by fruit flies in spite of treatment with Lebaycid and Dipterex.

Nectarine

376. No fruit was obtained from the Nectarine grafted on Local peach root stock as the fruit was attacked by fruit fly.

Persimmons

377. Little progress can be reported on the five varieties of persimmons. They again showed dormancy in winter; leaves were shed during April to October.

Apple

378. The two Tropical Beauty Apple trees produced fruits but they all dropped down.

Avocado

379. The sixteen varieties of grafted Avocado, namely: Fuerte, Areu, Saison, Edranol, Lula, Linda, Itsanna, Fair Child, Colinson, Pavenoy, Peterson, Black Round, No. 10, Fair-child, Booth and Taylor, which were planted last year, made good growth. One grafted plant of the variety Taylor died of root-rot; there were also some casualties from the same cause among the two year old seedlings.

Grapes

380. Grape variety Citronelle, formerly known as Napoleon Chasselas, introduced form Reunion was crown-grafted on two strains of variety Isabelle, and on variety Couderc. The plants are doing well compared to plants grown on their own root. A fertilizer mixture consisting of Sulphate of Ammonia, Triple Super and Sulphate of Potash at the rate of 1 kg. per plant was applied.

Strawberry

381. The introduced varieties from Kenya, namely: Cambridge Rareguard, 1-4, 1-8, 1-12, 1-16, 1-17 and the local small fruited variety were maintained. The yields were again very poor.

Grass and Fodder

382. Seeds of the four introduced varieties of *Leucaena glauca* (acacia) were supplied to some growers and also to the Sales Station.

A total of 184 tons of green fodder was supplied to the Division of Veterinary Services at Reduit.

383. The following grass and legume varieties were grown in introduction plots: *Eragrostis* sp., Green panic *(Panicum maximum var. trichoglume),* Blue panic *(Panicum antidotale),* Buffel grass *(Cenchrus ciliaris),* ordinary Sudan, Sweet Sudan *Centrosema pubescens, Glycine javanica,* Townsville Lucerne, Louisiana White Clover, R.H. Lucerne, *Sorghum almum.*

384. *Cenchrus ciliaris* (Molopo strain) newly introduced variety from Madagascar has been propagated at Palmar and La Ferme. It is doing well. *Vigna marina* from Australia has been propagated at Reduit, La Ferme and Palmar, and is growing well. The strains of Sorghum almun CP 128626, CP 128627, CP 128628, CP 128629, CP 112019 and No. 625 had an attack of rust which destroyed them. *Desmodium intortum* has been propagated for seed production. It can be used as a good cover crop to keep down *Cynodon dactylon.*

Foodcrops

385. Collection plots of twenty varieties of manioc were maintained. The varieties were (1) manioc 29 (2) Butter sticks (3) Desvaux (4) manioc blanc (5) Paloma (6) Cassava Beurrum (7) Blanchette (8) Australia (9) Icery (10) Negrito 17 (11) Singapour (12) Nestor (13) Yeyein (14) Manioc Jaune (15) Bitter (16) St. Martin (17) Negrita (18) Rempart (19) Rodley (20) De table.

386. The following ground nut varieties were planted for seed production: Manipintar, Katumani 71, Makulu Red, NC. 2, Mgongo, Beit Dagan Natal common, Spantex, Star 2, Virgina Bunch, Argentina, Tenessee Red, Dixie Spanish, Cabri.

Seed Production

387. The following vegetables were grown for seed: Beetroot, rave, squash, calabash (Natal), cucumber (local), peas local, maize, sunflower, brede de chine (baton blanc), Bocklah, Beans, Chillies, Cabbage, Cowpeas, Cotomili.

La Ferme

388. At La Ferme, the observation plots of various gresses and the established plots of Pangola grass were maintained. The Pangola grass was thrice destroyed by fire. The grass re-established itself after the rainy season. Sulphate of Ammonia at the rate of 100 lbs per acre was applied.

399. 195 tons of fodder were supplied to 129 cowkeepers of Bambous, Palma, Bassin Road and La Ferme.

390. Cleaning of land and planting of Pangola and other grass viz: Rhodes grass, Panicum maximum Sigor, Fataque Madagascar, *Cenchrus ciliaris Molopo,* Elephant grass, *Cynodon Plectostachys* and *Vigna marina* were continued.

391. The following varieties of acacia seeds have been propagated: Peru, Guatemala, El Salvador, Hawaii and Bald Hills.

392. Firebreaks were established around the periphery of the cultivated area. Establishment of grasses was seriously hampered by prolonged periods of drought.

PALMAR

Onions

393. At Palmar, onion march sets of Red Creole and Bombay large red varieties were harvested in January 1968, and planted in March 1968. The percentage of flowering in Red creole variety was one per cent whereas Bombay large red flowered profusely—about 40 per cent. Some treatment was given to both varieties and the yield was as follows: Red Creole variety 11.65 tons per acre. About 50 per cent of the Bombay large red variety bulbs were rotten reducing the yield to 4.62 tons per acre.

Coconuts

394. Of the 587 Malayan Dwarf Green, Yellow, and Red varieties of 2 years old, the rhinoceros beetles have wrought havoc and 181 plants of the Malayan dwarf of mixed varieties had to be uprooted and replaced. 120 plants of less than 2 years suffered less damage. Applications of insecticides such as dipterex and bexadust have been regularly carried out. As for biological control 25 pairs of Scolia as parasites have been released, but no effect whatsoever has been observed yet.

Grass

395. 69,37 acres of Pangola grass established on coral sand were maintained. Grazing interval was about 75 to 90 days. Sulphate of Ammonia at the rate of 100 lbs per acre was applied after each grazing and some paddocks received a fertilizer mixture of 12:12:20 at 100 lbs per acre. Four grazings were allowed and 4 cuts were made during the year.

396. *Vigna marina* is so far the best legume among the introduced varieties. It is behaving well in the sandy and Red soil areas. It shows good drought resistance but is susceptible to insect attacks, and requires frequent sprayings.

397. *Cenchrus ciliaris,* Molopo strain which is behaving well, has been propagated in several plots both in sandy and the red soil areas. It is fairly drought resistant.

398. *Bracharia brizantha,* Ceylon, failed to establish itself on sandy soil but is doing well on red soil.

399. *Cenchrus ciliaris* (Boorara) has been sown in May 1968.

400. The introduced acacia varieties viz. Peru, Guatemala, Hawaii, El Salvador, Bald Hills are doing well and the plants have been allowed to seed. The seeds have been broadcast in the red soil areas and established as a hedge along the dry walls fencing the paddocks.

401. The following leguminous plants are under observation: Siratro, *Glycine Javanica, Desmodium intortum Lotononis sp.*

402. 540 tons of fodder have been cut and supplied to the Veterinary Division.

403. The walling of 2 paddocks have been completed. There has been considerable regeneration of self sown acacia in the walled paddocks in the absence of grazing.

Barkly Experiment Station

Development

404. The new sale building which was completed last year was commissioned on 16th September.

405. The air conditioning unit for the extension seed store built in 1966 could not be purchased on account of shortage of funds.

Seed Production

406. Some 50,847 lbs of vegetables and other seeds were processed during the year. The area devoted to vegetable seed production was about 30 acres at Barkly. Conditions for seed production were generally favourable except for the dry months of November and December which was coupled with a shortage of irrigation water.

407. The value of plants and seeds sold to the public and issued free to Government institutions for the last three years is as follows:

	1966	*1967*	*1968*
	Rs	Rs	Rs
Sale of seeds	36,864.28	30,564.59	40,132.10
Sale of plants	35,239.50	35,741.30	18,548.40
TOTAL ...	72,103.78	66,305.89	58,680.50

408. The policy of the Ministry to stop the sale of budded orange trees and the limited number of coconut seedlings available accounted mainly for the drop in the sale of plants.

Citrus

409. About 1,500 rough lemon root stocks were budded or grafted, mainly with Washington Navel, Navalencia, Valencia, Parsons Brown and Pineapple oranges, the local mandarin, Juddoo grapefruit, Mineole and Seminole tangelos for sale to the public.

410. About 350 rootstocks of the following varieties—Sumki Tangerine, Cleopatra Tangerine, Rangpur lime, Morton Citrange Rusk Citrange, Troyer Citrange, Trifoliate orange planted at Richelieu Experiment Station were budded or grafted with Juddoo Grapefruit, Mineole Tangelo and Djeroet Keprok Poenten Mandarin.

411. About 9,000 seedlings of 28 citrus and citrus relatives raised from seeds received from Brazil were potted and trained.

Coconuts

412. Nearly 5,000 seed nuts of the Malayan Dwarf variety and nearly 3,000 seed nuts of the Pemba variety from established plants at Plaisance Experiment Station were sown during the year.

Litchi

413. The litchi crop has been very poor indeed this year and amounted to approximately 15,000 fruits only—probably on account of unfavourable climatic conditions prevailing during flowering and fruit formation.

OTHER ORCHARD CROPS

(a) Peach

414. The small peach orchard bore well and a fair number of fruits were saved from attack of fruit flies by bagging with ordinary calico cloth.

(b) Grapes

415. Observations continued on the performance of the white grape variety Citronelle on its own roots and of the same variety grafted on three stocks. Improved vigour of growth in the grafted plants was already apparent since last year, while the growth of plants on their own roots has remained poor. All three stocks used seem to be equally good. Observations on growth and yield continue.

Abercrombie Nursery

Sales of Plants

416. A total of 11,636 plants were sold to the public for the sum of Rs 6,092.35. Most of the plants sold came from Royal Botanical Gardens Nursery and Barkly Experiment Station only. Some plants were propagated at Abercrombie Nursery itself. Plants were issued free for planting on the trunk road and on various stations.

Coconuts

417. Nuts of the following varieties were received from Plaisance Experiment Station and were sown for sale to the public:

Malayan Dwarf red	181
Malayan Dwarf green	371
Malayan Dwarf yellow ...	314
Pemba	531

Seed Production

418. Vegetable crops were planted for seed production. The seeds harvested were sent to Barkly Experiment Station to be cleaned and sold.

Mangoes

419. The mango orchard produced a good crop of fruits. Spraying of Bidrin and Phaltan had been carried out at regular intervals.

Grapes

420. The Citronelle grape produced only a small amount of fruits.

Royal Botanical Gardens

Development

421. The twin ponds have been completed, the floor and sides of the lower pond have been paved as the water was seeping rapidly. *Victoria Regia* has been planted in the first pond and water lilies in the second one. The garden was kept clean and well maintained throughout the year. There are now 20 stags and 13 tortoises. Malayan Dwarf coconuts have been planted to replace the dead Pemba coconuts near the Model Factory. The only surviving plant of *Acantophoenix Rubra* has been planted near the *Lienard Obelisk* in La Victoire Square, Section C 2. An avenue of *Hypophorbe Indica* has been planted in Avenue Stadman near the " Grand Bassin " end. Dead plants are being replaced as far as possible. Labelling of the plants has been continued. Plastic labels (black) with engraved letters (white) are being used. According to the gate count there have been 167,900 persons who visited the gardens during the year. the highest number of 22,649 being in the month of August and the lowest number of 5,802 in the month of February.

Orchards

422. Though the mango trees have flowered very well, only a very small amount formed fruits.

423. The litchi orchard produced only a small amount of fruits. 4,400 litchi fruits were harvested and sold to the employees.

Rice

424. Rice seedlings of varieties Begami and Mare Choisy were transplanted in late December 1967 and early January 1968 for observations and bulking of seeds. The Begami variety was transplanted on 22.12.67 and harvested on 23.3.68; the Mare Choisy variety was transplanted between the 9th January to 18th January 1968 and harvested on 13th May 1968. 40 kgs and 80 kgs. respectively of seeds of the 2 varieties were obtained.

425. Begami seedlings were transplanted on 26.6.68 at spacings of 10 ins. × 4 ins. and 9 ins. × 9 ins. These plants flowered but did not set seeds and were removed on 25.11.68.

426. Four selections of Mare Choisy rice viz. Curepipe 1/67, 2/67, 3/67 and 4/67 were sown on 26.6.68 and transplanted on 29.7.68 at a spacing of 2′ × 4″. Harvest was done on 25.11.68 as follows:

(a) Curepipe 1/67—200 gms. for 50 plants
(b) Curepipe 2/67—25 gms. for 1 plant
(c) Curepipe 3/67—70 gms. for 41 plants
(d) Curepipe 4/67—40 gms for 13 plants.

427. Some seedlings of Tai Chung Native were received from Richelieu Experiment Station and were transplanted on 9.9.68 at a spacing of 9″ × 9″ in an area of 100 sq. ft. 5 kgs of paddy (fresh wt.) was harvested on 3.1.69.

428. The Begami rice sown on 12.8.67 and transplanted on 28.9.67 was harvested on 4.1.68 with the following yields. 20 rows of 10 ins. × 4 ins. in an area of 1,452 sq. ft. gave 104.5 kg. of paddy (3.1 tons/acre). 43 rows of 9 ins × 9 ins. in an area of 2,904 sq. ft. gave 171 kgs. of paddy (2.56 tons/acre).

Weather condition

429. The weather has been rather dry, warm, slightly cold during the winter season. During summer it was rather dry followed by drought. The Cyclone ' Ida ' visited our island on 12th and 13th February, 1968. It caused slight damage to the plants. Climatic conditions on the whole were not unfavourable.

430. Rainfall: Hereunder is the rainfall distribution per month: January (1.87″), February (19.35″), March (12.57″), April (2.78″), May (2.03″), June (2.54″), July (5.42″), August (2.12″), September (3.74″), October (1.52″), November (2.86″) and December (1.43″). Total rainfall registered during the year was: (58.23″).

Crops

431. Citrus trees: Spraying of copper oxychloride and Rogor have been carried out at fortnightly intervals during the fruit bearing period and fertilisers have been applied according to programme. Watering, weeding, cleaning and pruning have been done whenever required.

Pemba coconut palms

432. Coconut palm trees have been treated regularly with Dipterex against the " Rhinoceros Beetles " at fortnightly intervals. In spite of the above treatment, five trees have been seriously attacked. Weeding and application of complete fertilizer have been carried according to programme.

Royal Botanical Gardens Nursery

433. The nursery has continued the large scale propagation of plants to be sold at Abercombie Nursery and Barkly Experiment Station. 2,460 mango grafts of different varieties were made on seedlings of Maison Rouge and Dauphiné varieties. Of this 1,067 were successful.

434. During the year 18,783 potted plants of various spp. have been supplied to various stations, of which 8,944 to Abercombie Nursery and 9,427 to Barkly Experiment Station for sale to the public. The balance has been issued to Agricultural College, Central Experiment Station, John Kennedy College and Mapou Demonstration Centre free.

435. Seeds of all palm varieties in the Garden have been raised partly for replacing vacancies for recruiting and partly for sale to the public from our nurseries at Abercombie and Barkly.

Pamplemousses Experiment Station

Tobacco

436. The three most important commercial varieties of tobacco viz. Yellow Mammoth, N.C. 95, and Amarello were planted for selection of seeds.

437. Various crops have been grown for seed production, the seeds being sent to Barkly for sale.

Bois Marchand Grassplot

438. Of a total area of 38A09, 25A have been planted under Pangola grass. 90 permits were delivered to cowkeepers for cutting Pangola grass. A total of 1,547 bundles of grass was cut, weighing approximately 61,880 kgs.

Pointe aux Piments

439. Works at Pointe aux Piments was started on 29.7.68.

440. The condition of the land is very bad, with much wild growth and stone quarries. An area of about 5½ A has been cleared and accacia has been planted in rows five feet apart wherever possible.Stray goats are frequently destroying the planted acacia.

Richelieu Experiment Station

Tobacco

441 The sterilisation of seed beds with Methyl Bromide has become standard practice. After the tobacco seedlings have been removed, the beds remain free of weeds and a crop like onion can be raised on the beds with good results. Together with the sterilisation of all seed beds, the seedlings in the nursery are given much care in order to promote rapid and continuous growth. The spraying of Zineb for checking " damping-off " in too wet weather and the drenching of beds with Lead Arsenate and D.D.T. against cut-worms and leaf-eating caterpillars have become routine. Farmyard Manure is used to surface the beds as it is cheaper and more easily available than compost. Also it is much less easily washed off by heavy rains.

442. The varieties N.C. 95 and Yellow Mammoth continue to display their good qualities and are highly favoured by planters of flue-cured tobacco, especially N.C. 95, which is both high yielding and resistant to soil diseases. The variety Kutsaga Mammoth introduced from Rhodesia has failed to become acclimatised here and is most susceptible to the common diseases of tobacco viz. Bacterial Wilt, Black Shank, Nematodes and Powdery Mildew.

443. Regarding air-cured varieties, planters still give preference to Amarello over the Burleys, although the latter varieties have a shorter growth period, are as resistant to diseases and take a shorter time to cure.

444. Among fourteen crosses between various flue-cured varieties, the most promising in terms of yield (green weight per acre) were: C 187 × N.C. 95, C 187H ×Nc 95, Box NC 95, N.C. 95 ×V 30, Y.M. ×N.C. 95 and N.C. × Y.M., with but little difference between the last two.

445. Seven acres of flue-cured and five acres of air-cured varieties were planted in April for the purpose of seed production. Late flowering plants showing great vigour and a high number of leaves at short internodes together with no symptoms of disease are selected as seed-bearers and their flowers enclosed in calico bags to ensure self-fertilisation. When the flower heads are ready for harvest the selected plants are uprooted and their roots examined. All seeds from plants whose roots show severer attack from either Black Shank or Nematodes are rejected. 800 plants of N.C. 95, 600 of Yellow Mammoth and 750 of Amarello were thus bagged. From these after selection only 15.5 kg of N.C. 95, 10.5 kg of Y.M. and 17.4 kg of Amarello seeds were retained.

446. Flue-curing was done with Diesel oil using the Major Anchor unit. During the year 2,997 kgs of flue-cured leaf were sold for a gross return of Rs 14,758.63 and 2,917 kg of air-cured leaf of a value of Rs 7,335.50. The considerable quantity of air-cured leaf was produced in agreement with the Tobacco Board and arose from a bigger demand of air-cured tobacco by manufacturers.

Sugarcane

447. The sugarcane harvest for 1968 was 728.59 metric tons from a total area of 28 acres giving an average yield of 26 tons per acre. The unusually low yield was due to a scarcity of irrigation water. Two and a half acres were planted in August with the variety M 13/56, received from the Cane Nursery at Pointes aux Sables. The germination was good but the crop has suffered from the severe drought which prevailed during October and November. Planting material of the variety M 377/56 was not available at the Cane Nursery.

Orchard

448. Seven months old seedlings of Sumki Tangerine, Rusk Citrange, Troyer Citrange, Cleopatra Tangerine, Rangpur lime, Morton Citrange and Trifoliate Orange were transplanted in February. These seedlings are being used as new stocks for the budding and grafting of citrus and are intended to supersede Florida Rough Lemon. The citrus orchard was uprooted in July to prevent the spread of recently catalogued virus disease namely Greening, Psorosis and Exocortis.

449. Litchi although flowered, failed to set fruit but mangoes, especially Maison Rouge, gave a moderately good crop this year. Seeds of Maison Rouge were sent to Barkly Experiment Station for the purpose of propagation.

Livestock

450. One bull and about fifteen heifers of the Creole breed are kept on the station for breeding purposes. A fortnight before calving, the mother cows are sent to the Livestock Breeding Station at Curepipe. All the poultry kept on the station was sold during the year.

XIX. Plant Pathology Division

Tobacco

451. Brown leaf spot of tobacco *Alternaria longipes* was unusually severe on Virginia and Amarello plantations at Massilia in June.

452. Frog eye *(Cercospora longipes)* appeared in a few plantations but caused little damage during the year.

453. Heavy infestation by root knot nematodes occurred in many plantations, particularly in the sandy soil of coastal regions where a high percentage of stunted plants with symptoms of yellowing were observed. In Flacq district, bacterial wilt infection seemed more severe in soils where a high population of root knot nematodes occurred. The nematode-wilt complex resulting in poor stands and low yields is likely to be of some importance to the tobacco industry and experiments with Ethylene Dibromide fumigation in the fields have been planned for 1969.

454. Vein banding disease, caused by Potato virus Y alone, or in combination with cucumber mosaic virus, was observed in several plantations, particularly along border rows. A necrotic strain of Potato virus Y, causing veinal necrosis, caused some stunting at Pamplemousses district, and the disease seemed to occur to a greater extent than in the previous years owing to the abundance of the aphid vector.

Potato

455. Although not very severe, potato blight was prevalent throughout the growing season in the wetter localities. Blight symptoms were still observed in the field in December at Curepipe Experiment Station. Plantations in the North were mainly affected in June. The varieties ' King George ' and ' Up-to-date ' which were planted on a large scale were found to be very susceptible to the disease. On the other hand, Pimpernel grown at Mapou showed fair resistance to the disease.

456. Potato virus Y occurred on Pimpernel but not on ' King George ' and ' Up-to-date '. Leaf roll was observed on the variety ' King George ' imported from South Africa. Some plantations were infected to the extent of 10 per cent. Ordinary mosaic virus was observed to the extent of 2 per cent on ' Delaware ' variety imported from Australia.

457. Potato Scab *(Actinomyces scabies)* was particularly severe in the South at Riche Bois and St. Felix.

458. Early blight *(Alternaria solani)*, which is normally of minor importance, was severe in many plantations on second season crops. The disease was controlled satisfactorily by M/45 sprays.

459. Rhizoctonia stem lesions and root rots caused some damage to plantations in most districts. The black scurf stage of the disease was not however noticeable.The causal organism *(Rhizoctonia solani)* seems to be widespread in the soils of Mauritius and is being investigated upon.

460. A severe rotting of tubers in storage occurred in November, 30 per cent of tubers being infected at Flacq.

461. In April, potato seed pieces from Belle Isle, La Mecque and Sauveterre of the variety ' King George ' were reported to be affected with a discoloration at the centre of the flesh, 1—2 per cent of the cut pieces being affected. The trouble was investigated and found to be a physiological breakdown of the flesh caused by:

(a) Black heart which develops in tubers exposed to temperatures over 100°F for some time—through overheating in storage or exposure to hot sun, and

(b) Internal bruising due to rough handling.

462. The seed potatoes had been imported in 25lb bags and many potatoes with the dark discoloration showed signs of compression. It is strongly recommended that seeds be henceforth imported in cartons rather than in bags.

463. A fungicide trial was performed on the variety ' Up-to-date ' planted in September at Curepipe Experiment Station. The experimental design adopted was a randomized block of 5 rows for each treatment and 4 replicates. The fungicides tested were Dithane M/45, Difolatan, Du Ter (Triphenyl tin hydroxide), Antracol (Zinc—thiocarbamate compound 70 per cent W.P.) and Brunomax (combination of three radicals, zinc, manganese and copper as the dithiocarbamate and oxychloride). Fungicide applications started in October and using a motor sprayer, seven sprays were carried out at weekly intervals, except for Brunomax which was sprayed fortnightly. Yield data were taken from 3 middle rows in each treatment and analysed statistically.

464. Results are as follows:

Treatment	*Control*	*Difolatan*	*Du Ter*	*Dithane M/45*	*Brunomax*	*Antracol*
Dosage gm/gal. ...	—	20	6	20	15	20
Yield	14.1	20.2	26.9	60.7	27.6	14.2
L.S.D. (P = .05) ± 13.4						
(P = .01) ± 18.6						

465. Yield data showed that Dithane M/45 gave significantly better control of potato late blight than the other fungicides tested. Only M/45 and Brunomax treated plots gave significantly higher yields than the control.

Maize

466. Rust *(Puccinia polysora)* was severe on both local and introduced varieties during the summer months, particularly from December to April.

467. The following observations on varietal resistance to rust and *Helminthosporium* leaf spot were made at Pamplemousses Experiment Station:

Variety	*Helminthosporium*	*Rust*
Israel 22 ...	Resistant	Very susceptible
Hybrid 170 ...	do	do
S/A 100 ...	do	do
S/A 4 ...	do	do
Hybrid 182 ...	do	Susceptible
R 632 ...	do	Resistant
Hybrid 157 ...	do	do
Local ...	Slightly susceptible	Susceptible

Rice

468. A plant disease survey of rice plantations was carried out during the year. Bronzing and stripe symptoms of leaves occurred on variety ' Begami ' at Curepipe Experiment Station in October. The disease was suspected to be of bacterial origin but cultures did not reveal the presence of pathogenic bacteria. Specimens were forwarded to the Commonwealth Mycological Institute, but no sporulating pathogenic fungi were associated with the necrotic areas. The disease which is widespread could be physiological and further investigation will be carried out in 1969.

469. The following fungi were recorded for the first time on Rice in Mauritius:

On leaves—*Leptosphaerulina trifolii* Rostr. Fetr.
Coniothyrium fuckelii Sacc.
Leptosphaeria oryzina Sacc.
On gumes—*Kuskia oryzae* Hudson
Cochliobolus lunatus Nielsen & Haasis

Tomato

470. Fusarium wilt *(Fusarium oxysporum)* Schlecht ex Fries occurred for the first time at Belle Isle where the disease was widespread in a plantation. In the North, grey leafspot *(Stemphylium solani)* and powdery mildew *(Leveillula taurica)* were the main disease problems. The former was satisfactorily controlled by M/45 sprays and the latter by Karathane sprays.

Groundnut

471. Wilting of groundnut caused by *Sclerotium rolfsii* occurred in most localities during the summer months. In December plantations at Barkly, 5 per cent of the plants were infected. At Arsenal, 8 per cent infection were recorded.

472. Seed rotting with *Aspergillus niger* and *Botryodiplodia theobromae* in association caused poor emergence of seedlings at Plaisance and Rivière des Anguilles.

Onions and Garlic

473. Onion plantations were in general free from plant diseases on account of dry weather conditions in winter.

474. Blast *(Botrytis squamosa)* and pink root rot *(Pyrenochaeta terrestris)* were the main diseases of onions during the year. A fungus isolated in pure culture from wilted plants at Petite Rivière was identified by the Commonwealth Mycological Institute as *Fusarium oxysporum* which causes Fusarium wilt of onions. Root knot nematodes of onions *(Meloidogyne sp.)* caused yellowing and stunting of plants at Palmar and Reduit. Garlic rust *(Puccinia allii)* was recorded for the first time in Mauritius at St. Félix.

Bean

475. Severe mosaic occurred on the local red variety in most localities during the winter months. A survey of diseases of *Phaseolus mungo* was carried out during the year. The following diseases were recorded for the first time on the crop:

Leaf spot —*Cercospora canescens*
Phyllosticta phaseolina
Powdery mildew—*Erysiphe polygoni*
Mosaic —Virus disease.

476. A preliminary fungicide trial was performed at Reduit in March for the control of blight of carrots *(Alternaria dauci)* with Difolatan (20 gm/2 gal. of water) and M/45 (20 gm/2 gal. of water) as standard fungicide.

The following mean yields were obtained:

	lb
Difolatan	34
Dithane M/45	29
Control	24

477. Although highest yields were obtained with Difolatan, the treatments were not statistically significant.

Cucurbits

478. Anthracnose *(Colletotrichum lagenarium)* was unusually severe on watermelon at Rivière des Anguilles in November.

479. A fungicide trial was performed at Reduit for the control of both powdery mildew and scab *(Cladosporium cucumerinum)* on squash. The following mean yields (kg) of marketable squash fruits were obtained:

Dithane M/45+Karathane ...	85
Difolatan+Karathane ...	64
Control	70

Ginger

480. The leaf spot and blight disease of unknown cause previously recorded were again widespread during the year, particularly in humid areas. The disease was very severe at Plaisance in June.

Sunflower

481. The survey of Sunflower plantations continued in 1968. A spotting of flower heads by *Cercospora helianthicola* was recorded for the first time in Mauritius. Very few plants were found infected with the mosaic disease previously reported on Sunflower and it seems doubtful whether the virus disease would be of any economic importance in Mauritius.

Coffee

482. Coffee anthracnose *(Colletotrichum coffeanum)* was recorded on leaves at Bel Ombre following cyclone damage to young coffee plants.

Pea

483. Severe epiphytotics of powdery mildew *(Erysiphe polygoni)* occurred in the North during the winter months. The disease was controlled to some extent by Karathane sprays.

484. A seed dressing trial was performed at Reduit in October to control *Ascochyta* blight.

The following fungicides were tested as seed dressings:

Difolatan	...	1.5 gm/kg of seeds
Fernide	...	2 gm/kg of seeds
Agrosan G.N.	...	2 gm/kg of seeds
Captan 50	...	2 gm/litre of water (seeds soaked for 24 hours)

485. Karathane at $\frac{1}{2}$ gm/litre and Bidrin at 1 cc/litre were applied as sprays on all plots.

Results are as follows:

Treatments		*Difolatan*	*Fernide*	*Agrosan GN*	*Captan dip*	*Control*
Mean Yield/plot (gm)	...	487	387	475	338	287

486. No statistical difference was found for the different treatments.

Lathyrus Sativus

487. A disease survey on *Lathyrus sativus* (dhol khessari) was carried out during the year. A leaf and pod disease occurred at Reduit and Pamplemousses in August and September. The disease which is recorded for the first time was investigated. A bacterium was isolated in pure culture but did not prove pathogenic.

Vigna

488. A severe leaf spot of Vigna caused by *Septoria vignicola* was recorded for the first time in Mauritius.

Citrus

489. Greening virus was widespread in many citrus plantations; grape fruit, mandarines, lemons, were in general more affected than oranges. The disease was very destructive at Chamarel. Several cases of collar rots, which are attributed to *Phytophthora sp.*, occurred at Case Noyale in June.

490. Fruit rot of oranges caused severe damage at Reduit. The fungus causing the disease was isolated in pure culture and was identified by the Commonwealth Mycological Institute as *Penicillium funiculosum*.

Watercress

491. A leaf spot of watercress caused by *Cercospora nasturtii* was recorded for the first time in Mauritius.

Plant Inspection at Customs and Airport

492. 967 Plant Import permits and 608 Phytosanitary Certificates for plants being exported were delivered at the Quarantine Office, Cerné Dock, Port Louis, as well as 3,150 certificates of examination for articles being imported.

493. 122 Plant Import permits and 172 Phytosanitary Certificates for plants being exported were delivered at Reduit. 50 fumigation operations were performed at the fumigation plant Fort George and fees collected amounted to Rs 2,745.75. 111 ship arrivals and 825 plane arrivals were attended to.

Plant Quarantine

494. The following plants were grown under quarantine:

From seed to seed	*Origin*
Rice	
Syntha 3523	Indonesia
MK 1318	Madagascar
IR 5	Philippines
IR 154–61–1–1	,,
IR 8	,,
IR 485–2–14–1	,,
Taichung Native 1	,,
Dee–geo–woo–gen	Taiwan
Tainung selection No. 1	,,
Tainan No. 5	,,
Tainung selection No. 2	,,
Chianan No. 8	,,
Taichung No. 186	,,
Hsinchu No. 56	,,
I–geo–geu	,,
Taipei No. 310	,,
Calrose	Australia
Caloro II	,,
Blue Bonnet	,,
Kulu	,,
YRL 1	,,
YRL 2	,,
Saturn	U. S. A.
Malinja	Malaysia
59–1300	Brazil
58–1246	,,
Lenario	Italy
Guyana	South America

495. Varieties Tainung No.1 and Dee-geo-woo-gen showing diseased symptoms were not released.

Cotton

496. Two varieties were grown in quarantine.

Tobacco

497. Two varieties were grown under quarantine from seed to seed—Maryland 609 and 59.

Grass Seeds

498. Two varieties were grown in quarantine.

Citrus

499. Citrus bud wood imported from California were grafted on stocks planted in Quarantine in November.

Pine Apple

500. Two varieties of pineapple grown in the quarantine greenhouses were released during the year and planted in the open quarantine plot at Reduit.

Potato

501. Potato varieties from Israel were planted in quarantine. The plants showed symptoms of a virus disease and were destroyed.

502. The sugar cane quarantine greenhouse was operated on behalf of the Department by the Mauritius Sugar Industry Research Institute.

Miscellaneous Disease and Fungi

503. The following were recorded for the first time in 1968:—

on *Amorphophallus campanulatus* glume, collar rot *Sclerotium rolfsii* ...

on *Boehmeria macrophylla,* leafspot, *Cercosporella* sp.

on Cowpea, leaf spot, *Septoria vignicola* Vasant Rao.

on Orange, fruit rot, *Penicillium funiculosum* Thom.

on Onion, collar rot, *Fusarium oxysporum* Schlecht-ex Fr.

on Pawpaw, fruit rot, *Phytophthora parasitica* Dastr.

on Poppy, soft rot, *Erwinia carotovora* (Jones) Holland.

on Rice, on leaves, *Coniothyrium fuckelii* Sacc.
Leptosphaeria oryzina Sacc.

on glumes: *Leptosphaerulina trifolii* (Rostr.) Petr.
Nigrospora state of *Khuskia oryzae* Hudson.
Curvularia state of *Cochliobolus lunatus* Nelson & Haasis.

on Rose, root rot *Corticium solani* (Prill. and Delacr.).

on Sunflower, leafspot, *Cercospora helianthicola* Chupp & Viegas. Bourd. Bourd. & Galz.

on Watercress, leaf spot *Cercospora nasturtii Passer.*

XX. Entomology Division

Biological Control

504. In the field of Biological Control, the Division was mainly concerned with stable flies control. Liberation of the stable flies parasites namely *Muscidifurax raptor, Spalangia rigia* were done regularly at La Chaumiere, Beauchamp, Savannah, Le Morne and St. Felix.

505. Surveys were also carried out at fortnightly intervals to determine the percentage parasitism in the field. The average figure of 45 per cent showed that the parasites have successfully adapted themselves in these places.

506. To reduce importations of these parasites from the Commonwealth Institute of Biological Control, the Division started to mass rear these parasites. About 750,000 *Muscoid puparia* were collected in the field and parasitized in the laboratory.

Control of Bean Fly ' Melanagromyza Phaseoli '

507. A survey was started at various localities to find cut the natural enemies of the Bean fly. Results so far obtained indicate that about 30 per cent of the pupae was parasitized by *Opius minusculus;* a parasite already present in Mauritius.

Euglandina Rosea

508. *Englandina rosea,* the predator of the giant African snail, *Achatina fulica* is well on the increase at various liberation sites. A number of consignments were sent to Tamatave for release.

Pests of Crops

Potato

509. The potato tuber worm *Phothorimaea operculella* was less frequent than last year both in fields and in storage. The main reasons for the decrease of the pest were probably due to good preventive measures taken by planters. Potato fields where usually tuber moth prevailed were well protected on account of a regular spray programme. Insecticides used were DDT.

Potato Tuber moth in stores

510. At the Agricultural Marketing Board the problem of reinfestation did not arise as the tubers were stored in cold rooms. Before storage started, the compound of the Marketing Board was thoroughly sprayed with Baytex and DDT. The surrounding fields were also treated with Dieldrin to prevent any emergence of the adult month.

511. At Medine Camp de Masque, Vapona Pest strips were tried to protect stored potatoes. Although the store was not well conditioned for the trial, only 5 per cent stored potatoes showed reinfestation by Tuber moth as compared to some 25 per cent in untreated stores. Potatoes were stored until January.

Tobacco

512. *Heliothis armigera* was one of the most important pests with which the grower of that crop has to deal. The injury done by this insect is destruction of the bud or growing tip and proves most serious when the plants are young. If the damage is not controlled, the leaves growing from the damaged buds are likely to be ragged. In places where chemical control started early, damage was insignificant. In an experiment carried out at Bel-Ile, regular application of DDT at fortnightly interval, the plants did not reveal injury.

Groundnut

513. The leaf tier, *Nacoleia praeteritalis,* was occasionally abundant on groundnuts leaves. A severe attack causing about 50 per cent defoliation was reported at Souvenir. Treatment with Ortho dibron gave very good control.

Coconut

514. The Coconut beetle, *Oryctes rhinoceros,* formerly confined to the Northern part of the island, has been found in certain isolated localities, such as Reduit, Beau Bassin, Nouvelle Découverte. The spread of that pest to these localities is due to the displacemenut of manure from infected sites. Larvae at different stages of development were found in a measure heap at Nouvelle Découverte, brought from Palmar Livestock Breeding Centre. It must be pointed out that unless a control on the movement of manure is observed, the pest will move to all parts of the island.

Collection of Scolia oryctophaga

515. During the months August—October, the months when the natural enemy of the coconut beetle are abundant, some 1,225 *Scolia* wasps were collected and 1,019 were liberated in the northern region of the island. It seems that the wasps do not adapt well to the North. This may be due to the absence of food. The establishment of small plantations of *Eupatorium* will provide feeding material to those beneficial wasps.

516. *Pheropsophus sobrinus* a predator of the coconut beetle, was recived from Bangalore in November, 1968. Of these 200 were liberated in the North in January, 1969. It seems that it does not adapt well in the island.

517. Manure movement control coupled with biological control, sanitation measures and chemical control with 2 per cent Dipterex should help to limit the spreading of the pest.

Tea

518. A severe attack of the tender leaves by the phytophagous mite, *Hemitarsonemus latus* occurred in October. At Crown Land Dick the following insecticides were tried:

(a) Phosdrin at 5 cc/litre (medium volume)
(b) Fac 20 at 4 cc/litre
8 cc/litre
12 cc/litre
(c) Murvesco at 4 gm/litre.

No effective control, was obtained. At la Pipe and Mildands, two insecticides were tried, namely Galecron and DDVP:

(a) Galecron at 4 cc/litre (medium volume spraying)

(b) A mixture of Galecron and DDVP at 5 cc/litre each.

Both Galecron and the mixture of Galecron and DDVP ave good results and the mites were effectively controlled.

It seems that the poor results obtained with Phosdrin was due to:

(a) Phosdrin has no ovicidal action. Thus the eggs of *Hemitarsonemus latus* present at spraying time were not affected and developed normally.

(b) The remanence of Phosdrin is too short.

Citrus

519. The Citrus white fly *Dialeurolonga simplex* caused a lot of damage to the Citrus plants. Injury resulted directly from loss of plant sap and indirectly from the sooty fungus growth that developed on the copious excretions of the white flies. In many orchards the fungus often covers both foliage and fruit, retarding growth and giving the plants a dirty appearance.

Tomato

520. The main pest of tomatoes was the red spider mite *Tetranychus spp.* In drier regions such as Black River, and in certain localities of the North, the attack was severe and leaf surfaces became bronze-coloured. In cases where no control measures were initiated, the whole plant turned brown and dried. However, at Bel-Isle, good control of the adult mites were obtained by applying Rogor at the usual rate of 2 cc/litre.

521. The tomato fruit fly *Pardalaspis* was under control with the use of Dipterex 80 per cent.

Pineapple

522. Occurrence of the mealy bug *Dysmicoccus brevipes* was observed at Montagne Longue. An insecticidal trial using Disyston at 2 gm. per plant was carried out at the Plant Pathology plot. Satisfactory results were obtained but it was observed that attacks were persistent in plants which were not watered regularly. This is true with most soil granular insecticides. A mixture of Phosdrin and Nicotine sulphate was found to be excellent against heavily attacked plants. Owing to the danger that Phosdrin presented on application of this mixture, this could be only done by the trained staff of the Entomology Division.

Bean

523. The Bean fly *Agromyza phaseoli* was a serious pest of this plant. Routine application of Aldrin applied as a soil insecticide reduced the damage.

524. The Division carried out a survey to determine whether another species apart from *Agromyza phaseoli* does exist locally. The identification was based on the colour of the puparia. Results so far obtained suggested the presence of only *Agromyza phaseoli.*

Miscellaneous Pests

525. *Thrips tabaci* caused considerable damage on Onion and Garlic at California and Petit Sable. Insecticide application using Orthodibron effectively controlled the pest.

Prodenia Litura

526. This lepidopterous pest was very common damaging young plants of cabbage, cauliflower and bean. Application of Prodan, a granular insecticide around the plants proved to be very effective.

Plutella Maculipennis

527. Heavy populations of this pest were seen on cabbages. Phosdrin was useful in controlling the pest.

Mole Cricket

528. The Mole Cricket *Gryllotalpa sp.* was reported to cut onion seedlings at soil level at Grand Sable. Aldrin applied as a soil insecticide reduced the population considerably.

Livestock Pests

529. Imported cattle were treated with Sevin and Dubble Benhex at disembarkation to prevent introduction of Tick-borne diseases.

XXI. Chemistry Division

Feed Stuffs

530. The raw materials received at the Livestock Feed Factory for the preparation of animal feeds were sampled on reception at the factory and analysed. About 110 samples of locally grown maize were taken and checked for their moisture content which was found to be between 15 per cent and 20 per cent. Imported maize has usually a moisture content of 10 per cent. The prepared feeds were also analysed periodically for their moisture, protein and fibre contents.

Fodder

531. Samples taken at Palmar and Curepipe Experiment Stations were analysed for dry matter and protein. Among the varieties analysed were:

	Dry Matter per cent	*Protein per cent D.M.*
Vigna Marina ...	22.5	14.0
Cenchrus ciliaris (Molopo)	53.1	10.3
Pangola	47.7	5.0
Herbe Bourrique ...	26.9	7 7

SCUM

532. The analysis of scum was performed relative to its value as a fertilizer. The following average was obtained:

Moisture %	*Nitrogen %*	*Phosphoric acid %* (P_2O_5)	*Potash %* (K_2O)
77.2	0.68	0.87	0.04

Oil Seeds and Nuts

533. In connection with the local production of vegetable oil, Soya seeds, Sunflower seeds and groundnuts were analysed for the assessment of dry matter and oil content. The average analysis was as follows:

	Soya	*Sunflower*	*Groundnut*
Dry matter per cent ...	90	90	83
Oil per cent Dry matter ...	13–17	39–45	41–45

Water

534. Water for various uses was analysed:

(1) Irrigation water was checked for salinity.

(2) Spring water from Anse Quitore, Rodrigues was analysed for acidity, hardness and major ions. It was found to be relatively hard with a high degree of salinity.

Ginger

535. The analysis of ginger was carried out for its moisture content on being dried at 55° to 60°C. The moisture of green ginger was found to be between 85 per cent and 90 per cent.

Soil

536. The analysis of soil sampled from small cane planters fields at the time of replanting was carried out to determine the exchangeable cations and the acidity. Soil sampled from fields to be planted in rice at Curepipe, Richelieu, Medine, Yemen and Nouvelle Decouverte was analysed for acidity, exchangeable cations, silica, organic carbon and nitrogen.

Oranges

537. Different varieties of oranges from Reduit and Plaisance were analysed for their sugar to acid ratio, which is claimed to be a criterion of the ripeness of oranges. Fruits from the same tree were picked at weekly intervals. It was found that the ratio was diffrent for different varieties as well as different localities. Fruits picked at the same time from the same tree also showed a marked variation in their sugar to acid ratio.

Miscellaneous

538. Assistance was given to the F.A.O. Milk and Beef Production in the field of analysis. Scums from all the Sugar Estates of the island was sampled and analysed. Samples of fodder, silage and feeding stuffs were analysed as requested.

539. The following were also analysed:

(1) Various types of fertilizers simple and compound.

(2) Different varieties of coconuts for the moisture and oil contents, and the shell to meat ratio.

(3) Locally grown rice for the moisture content.

(4) Calcium silicate and calcined magnesite for their main constituents.

(5) Dipping solutions for their level in active arsenic.

XXII. Engineering Division

Central Workshop

540. The servicing, repair and maintenance of all departmental vehicles, tractors and machinery were carried out at the Central Workshop. Complete service records were kept. The following servicing and repairs were carried out:

Vehicles	397
Tractors	136
Lawn Mowers	40
Sprayers	34
Scooters	50
Trailers	14
Irrigation Pumps	4
Fumigation Plants	4
Incubator	5
Agricultural Implements ...	26
Other Minor Works	39
Total ...	749

541. Two lorries received from the Special Mobile Force were completely overhauled and spray painted.

542. The following equipments and accessories were designed, fabricated, assembled or installed:

3 Canopies for lorries

5 Trusses and 2 sliding doors for extension of Central Workshop

1 Grain dryer for Livestock Feed Factory

1 Gate for Arsenal Demonstration Plot

New pipe line installed at Quarantine Station, Roche Bois

Rectifying coupling of incubator, Veterinary Division

2 Sinks for F.A.O.

2 Wiring covers for grain dryers

Fuel Tank for Tea Experiment Station

Stanchions for Fisheries and Veterinary Divisions

6 Wheel barrows reassembled.

543. Oil drums were steam cleaned for transport of materials to Rodrigues.

Buildings

544.—(1) Partitions were put up in the Extension Services Headquarters for coverting a hall into offices and projection room.

(2) Roof of extrension to Central Workshop was completed.

(3) Office and Stores erected at Nouvelle Découverte.

545. The following were fabricated or repaired:

(1) 4 Office trays
(2) 6 Cabs for lorries
(3) Stands for sink
(4) 18 Lamb traps
(5) 1 Triangular pyramid
(6) 2 Ladders
(7) 1 packing box
(8) Shelves for store and worksop
(9) 5 Frames for oyster
(10) Box for battry charger
(11) Doors for office
(12) Roof for office of Engineering Division
(13) 37 Cupboards, chairs, airm chairs, plan chests, plotting tables

546. The Agricultural Engineer continued to look after the building of the Extension of the Potato Store of the Agricultural Marketing Board at Moka.

547. Technical advice was provided to other divisions of the Department The overhead irrigation system for the Rice Experiment at Medine was designed and levelling of the field was carried out under the supervision of the Agricultural Engineer.

548. Lectures on Hydraulice, thermodynamics and Agricultural Engineering were delivered at the School of Agriculture of the University of the Unievrsity of Mauritius.

Livestock Feed Factory

549. 5,211 tons of different mixtures were manufactured during the year from such products as: Wheat Bran, Maize flour, Groundnut Cake, Cotton Seed Cake, Pollard, Meat Meal, Fish Meal, Oats, Lucerne Meal, Bone Meal, Cod Liver Oil, Skimmed Milk Powder, Molasses, Bagasse, Wheaten Flour, Rice Flour, Broad Beans Flour, Scums, Trelcovite, Trelco Bran Nittrofurazone, Trelco Bran Nitdofurans, Amprolmix UK, Aurofac 20, Adtramin, Chick Mix, Breed Mix, Ground Sand, Salt, Copra, High Protein Mixture and Raw Sugar.

550. 16 different kinds of foodstuffs are now offered for sale, namely: Chick Feed, Poultry Feed, Cow Feed Loose, Cow Feed Cubed, Bull Feed, Calf Feed, New Cattle Feed, Pig Grower Feed, Pig Starter Feed, Creep Feed, Horse Feed, Special Horse Feed, Scums Molasses Feed, Breeders Feed, Chick Mix, Cheap Cow Feed.

551. From the above mentioned mixtures, 5,223 tons were sold at the Livestock Feed Factory and Extension Shop, Rose-Hill, during the year.

552. In addition special kinds of feeds are being manufactured for experiments of the Curepipe Livestock Breeding Station.

XXIII. Fisheries

553.—(i) The duties of the branch are to enforce the provisions of the law regulating fisheries in territorial waters, and to study, recommend and implemment such new measures as may be necessary for the better protection of fish. It also collects statistical data, takes all steps necessary to improve the efficiency of the industry and the welfare of the fishing community.

(ii) As for the past several years, the Fisheries Division had to operate despite a serious shortage of staff. The number of vacancies at the end of the year was: six guards, four head guards, one statistical clerk, and one clerk and store-keeper.

554.—(i) The operation of flying squads continued on a reduced basis due to shortage of men. The assistance of the Police riot unit had to be sought for search operations in Mahebourg and Grand Gaube areas.

(ii) In sea operation also, poachers several times resorted to threats and violence. In view of a tendency to fish in larger groups, this proved a problem for the reduced flying squads. Despite this fact, a record length of netting was seized, indicating the use of longer nets by poachers, as no more nets were taken than in previous years. There was, however, a marked reduction for a great part of the year in the use of explosives by poachers due mainly to the stringent control of explosives during the period of emergency. The heavy penalties imposed for the possession and use of explosives also had an effect here.

Statistics on Detection of Fraud

Year	*Cases Prosecuted*	*Convictions*	*Total Contra-ventions*	*Illegal Nets*	*Explosives*	*Total of Fines*
						Rs.
1963	.. 213	199	279	84	22	6,657
1964	... 144	230	185	76	19	5,915
1965	... 89	112	140	36	9	3,911
1966	... 270	306	303	98	31	8,057
1967	... 171	197	218	72	16	5,075
1968	... 112	233	200	66	7	4,747

Sea Fishing

555.—(i) Complete statistics on fish landings were not available for 1967, but the drop indicated in the catch for that year continued in 1968, only 77.3 per cent of the 1966 catch being taken. Comparison of the landings by main species, moreover, shows that all stocks are being overfished systematically, and that, as predicted, the increase in fishing consequent to the normal increase in the fishing population is resulting in a drastically low catch. It is necessary here to repeat that unless strict measures are taken to reduce the

fishing effort, which can be effected by the substitution of gill-nets for large seine nets, that the stocks will fall to a dangerously low plateau. While the survival of species will probably not be affected because of the natural reserve formed by the deep water immediately adjacent to the reefs, the lowered catch will undoubtedly affected the livelihood of the fishing population, and may also in some measure affect possibilities of development in tourism.

(ii) It is worthy of note here that the spawning potential of the stock is greatly reduced by the elimination of all the larger fish in stocks, which provide proportionally far more eggs than do an equal biomass of recruits to the population.

Statistics on Sea Fishing

556.—(i) The total controlled catch landed was 940.497 tons. The controlled catch per quarter in metric tons was as follows:

	1962	*1963*	*1964*	*1965*	*1966*	*1968*
1st Quarter ...	284.2	372.1	296.0	284.0	240.0	201.9
2nd Quarter ...	334.4	436.6	348.0	299.0	346.0	270.9
3rd Quarter ...	257.4	322.2	204.0	214.0	227.0	151.1
4th Quarter ...	339.3	344.0	297.0	322.0	316.0	316.4
	1,215.3	1,474.9	1,145.0	1,119.0	1,129.0	940.3

(ii) The catch landed by net fisheries was as follows:

Year	*Catch (metric tons)*	*% of Total Controlled Catch*
1962	414	34.0
1963	396	26.8
1964	327	28.5
1965	300	26.8
1966	282	24.9
1968	238	26.3

(iii) The contribution to the catch by the various modes of fishing was as follows:

Catch in Tones

	Average			*Catch*	
	1951–55	*1956–60*	*1961–65*	*1966*	*1968*
Nets	410	363	370	282	238
Basket traps ...	715	628	474	403	338
Lines ...	247	275	216	243	224
Octopii ...	238	219	196	185	126
Lobsters ...	27	28	21	12	11
Harpoon fish ...	—	7	11	4	3
Total ...	1,637	1,520	1,288	1,129	940

(iv) The distribution of the fish caught was as follows:

Species	*1965*	*1966*	*1968*
	Kgs	Kgs	Kgs
Capitaine, *Lethrinus nebulosus* ...	22,283	32,980	28,069
Dame Berry, *Lethrinus mahesa* ...	44,741	46,919	39,170
Battardet, *Lethrinus harak* ...	16,437	31,819	17,356
Caya, *Lethrinus recticulatus* ...	18,630	24,077	16,558
Cordonniers, *Siganus spp.* ...	212,702	190,212	179,341
Rougets, *Mullus spp.*	45,793	49,004	26,320
Mullets, *Mugiloidae*	33,171	28,247	23,706
Vielles, *Senanidae*	58,144	63,159	49,046
Licornes, *Naso spp.*	106,894	139,082	124,647
Octopii	195,708	184,798	126,142
Crayfish, *Panulirus spp.* ...	18,258	12,178	11,480
Other species of fish	346,786	327,468	288,722
TOTAL ...	1,119,547	1,129,943	940,497

(v) The total landings averaged over five year periods were as follows:

Periods	*Total catch (metric tons)*	*Deviation in metric tons from the average*
1946—50	1,492	+ 8
1951—56	1,637	+153
1956—60	1,520	+ 36
1961—66	1,288	−196
1968	940	−543.5

NEW EQUIPMENT

557. The construction of Investigator proceed slightly behind schedule because of the riots in Port Louis at the beginning of the year and because of the threat of several cyclones. Despite this, however, plating was completed and the ship launched on 8th August, 1968. The interior work and building of the superstructure were done with the ship afloat in the Hay Dock, adjacent to the Taylor Smith yard. At a ceremony on the 24th October, 1968, attended by many of the leading figures of Mauritius, the " Investigator " was named by Lady Ramgoolam, wife of the Prime Minister Following this, static and sea trials were conducted in the presence of Officers of the Marine Services and of the Agricultural Services, and the ship was formally accepted on behalf of Government on the 20th December, 1968 by Lieutenant Commander A. G. Booker, Director of Marine.

558. The Investigator, 85 feet long and 23 feet wide with a moulded dept of 8½ feet, a stern trawler type combination fishing vessel, is to form part of the Mauritius Government counterpart contribution to a UNDP/FAO Fisheries Development Project aimed mainly at finding new fishing methods for the exploitation of the white fish on the banks of Mauritius and Seychelles, estimating the yield potential of the banks, and training Mauritians in all aspects of deep sea fishing. This Project is due to start in 1969.

Fishing Experimentation

559.—(i) Throughout the early part of the year, " Solitaire " and " Explorer " fished banks to the North, South West and South East of the Island, partly for the crew training, and partly to obtain comparative figures for the different types of fishing employed.

(ii) Following initial trials aboard " la Perle II " of new commercial trolling gear, during which one 147 pounds yellow fin tuna, two toothed tunas, one small blue marlin and several dorados were caught, this gear was tried on " Solitaire " and " Explorer ". The tuna run in late 1968 was particularly bad, however, and the original gear used was too weak to stop the larger fish, so that positive results were not obtained from this programme.

(iii) Aprogramme of study was prepared for the *Tilapia* ponds of the Curepipe Experimental Station, but progress was hindered by drought which resulted in the complete drying out of several ponds, and a serious lowering of water levels in the others.

(iv) Work continued in the Mahebourg fish form on the rearing of oystres and of a number of other species of pelecypond molluscs. Encouraging results were obtained from an oyster imported from Australia " *Crassostrea commercialis,*" which showed a remarkable rate of growth compared to the local species. No solution has yet been found to the problem of cannibalism in crabs reared at high density.

(v) In April, Dr. Fougère and the Fisheries Officer were invited by the Mauritius Fishing Development Company to form part of an expidition to study the potential crayfish resources of St. Brandon. The results of this cruise form the subject of a separate report. Some work was done in addition on fish and sharks, Dr. Fougeère also doing some salting of fish. In summary, however, it can be said that the crayfish of St. Brandon, P. *pennicilatus,* is present in great abundance, but because of the habitat which is strictly restricted to the inward reef area, the total stock is fairly small and is unlikely to produce a sustained yield of more than some 25 tons annually.

(vi) Salting of fish caught on the offshore banks continued at Pointe aux Sables under the guidance of Dr. Fougère. The quality of this salt fish presents a marked improvement on the products normally found on the market, and demand far exceeds production at this stage.

Visits of Experts

560. (i) The year marked a great deal of movement among visiting experts. Notably, Dr. Henri Fougère left Mauritius in September after a stay of six years as Fisheries Adviser. Other visitors were: Mr. Erling Oswald, Master fisherman and regional Project Manager of the FAO/UNDP Carribean Project, who came to report on the progress in the construction of the Investigator, Mr. A.G. Macdonald, regional Fisheries Officer of the FAO who visited us from Nairobi, and Messrs. A. Woodland and E. Holliman from FAO Rome who made a study of the investment possibilities in the tuna fishing and canning fields at the request of the Ministry of Agriculture and Natural Resources.

(ii) A notable arrival also was that of Dr. Gonzales-Manero on the 26th of October, 1968. Dr. Gonzales-Manero is the Marketing/Processing consultant in the FAO/UNDP Fisheries Development Project, and came as an advance recruitment to study local market condition, the salting of fish, and export possibilities for white fish caught on the Mauritius-Seychelles arc. Inspector Y. Sanson was appointed to act as his counterpart.

Offshore Fishing Companies

561. The Mauritius Fishing Development Company continued fishing operations off St. Brandon and on the banks with its ships, " La Perle II " and " La Sirène ", landing 723 tons during the year. The Limuria Company also continued fishing with its ship, the " Stella Maru ", landing 736 tons. Some difficulties were experienced in the sale of this frozen fish during summer months when locally caught lagoon fish is plentiful, but sales were brisk during winter months, indicating wide consumer acceptance of this product, which provides the cheapest form of fresh fish protein on the market.

XXIV. Rodrigues

Change of Staff

562. On 26th March, 1968 (on eve of Cyclone " Monique ") the Senior Agricultural Officer, Mr. Philip Hotchin, who had done so much for the development of Rodrigues, left the island on leave prior to retirement and was replaced by Mr. C. Delaitre.

General

563. Rodrigues had hardly recovered from Cyclone " Carmen " which hit the island on 24th December, 1967 destroying huts, plantations, livestock and fishing boats that it was hit again by Cyclone " Henriette " in early January, 1968.

564. Most of the crops that had been sown in December, 1967, had been washed away by " Carmen " which brought 10.77 inches of rain: the other crops such as maize, sweet potatoes, etc. and other recently sown crops were severely affected (burnt) by the heavy salt spray caused by " Henriette " which was a relatively dry cyclone bringing only 2.43 inches of rain.

565. The period following cyclone " Henriette " was unusually wet and most of the lands became water-logged and this adversely affected about 50 per cent of the maize crop which had been resown after " Henriette ".

566. Within a fortnight of the maize crop being ready for harvesting, cyclone " Monique " hit Rodrigues on 27th March, with winds up to 172 miles per hour.

567. This cyclone devastated Rodrigues. After its passage the soil was left bare apart from grass not one green leaf could be seen anywhere on the island. Most of the huts had been blown down, all crops were destroyed, the loss of livestock was heavy and a large number of fishing boats were destroyed; all the wind-breaks had been destroyed together with wide areas of forest trees and 90 per cent of the access roads had been washed away and could no more be utilised by motor vehicles.

568. Thanks to the generosity of the Government of Mauritius, the American Embassy, the Red Cross Society, the Israel Embassy and the Young Farmers Clubs, help in the form of funds for rehabilitation work, building materials, food cooking utensils, clothes, drugs, etc. were received.

569. The Agricultural Services, apart from their normal staff of about 1,500 people, employed on relief work to rehabilitate Rodrigues an average of 4,000 additional labourers on 2 days per week basis throughout the year.

570. Food, i.e. maize, flour, oil, sent to Rodrigues to relieve the famine conditions prevailing, was channelled through the Agricultural Services which with the help of the Police Force, organised weekly distributions to the whole population.

571. As a result of the cyclones, no fruits at all were available in Rodrigues and to prevent widespread avitaminosis, every endeavour was made to boost up vegetable production. Nurseries were established at the Demonstration plots and Breeding centres and young plants were sold to the public at a nominal rate—these nurseries also provided the opportunity for selection and production of seeds of the best varieties of vegetables adapted to Rodriguan conditions.

572. Citrus plants and other fruit trees were propagated and about 350 plants had been sold by the end of the year.

573. Trials were initiated concerning onion production—onion seeds were sown at each month of the year and observations were noted concerning two treatments (i) thick sowing of the seeds then transplanting the seedlings, (ii) thin sowing of the seeds and allowing the plants to develop *in situ*.

574. By the end of the year the onions sown thinly as from September looked promising to produce a crop in March.

575. Trials were also carried out concerning the production of coriander, dried chillies, broad beans, ginger and turmeric; results were encouraging.

576. The vanilla plantations established since 1925 and subsequently neglected were revived and new vines (cuttings) were planted in appropriate areas of the wet uplands.

Rehabilitation and Development Work

577. As reported earlier, Rodrigues was in a destitute condition after the three cyclones; the unit farms, water supply, roads wind-breaks etc. had to be rehabilitated within the shortest possible delay so that the farmers would be in a position of producing as soon as possible.

578. On about 1,000 unit farms the anti-erosion work was improved by providing new drainage canals, consolidating the terraces and the dry stone walls.

579. About 84 new unit farms were terraced and provided with drainage canals. About 100acres including wind-breaks were planted in Casuarina and Eucalyptus. About 80 acres of new lands were planted in Pangola. About 10 miles of new roads were opened and about 100 miles of roads rebuilt whilst being widened and provided with drains on each side. The first round-abouts in Rodrigues were also installed at dangerous road intersections.

580. The sites for 5 new reservoirs were prepared. Help was also provided on about 900 acres of land, so as to allow the famine stricken population togrow their own food.

581. The advantages derived in the utilisation of fertilizers was demonstrated on 30 unit farms (3 in each agricultural district).

Development of Farms Water Supplies

582. The reservoir at Malartic (200,000 gallons) was completed and so were the dams at St. Gabriel and at La Ferme.

583. Work started on the construction of a Reservoir (300,000 gallons) at Sainte Famille and a pump installed at Camp de Paul. Work was also started on the construction of reservoirs at Montagne du Sable and Corail. Further a total of 77,693 feet or galvanised water pipes and 100 taps were installed bringing the total of pipes laid to 502,567 feet and 1,565 taps installed.

Livestock Breeding Centres

584. The Breeding Centre at Batatran was completed and was in operation by the end of the year.

585. The Breeding Centre at Trèfles was nearing completion.

Crops

586. A high prevalence of thrips affecting the onion crop was evidenced.

Livestock

587. The system of delivering only 600 permits for sale of pigs for each boat proved beneficial to the farmers and prices up to Rs 1.60 per lb live weight were obtained for the first time in Rodrigues.

Production and Marketing

588. The approximate value of the total exports was:

	Rs
423 cattle at Rs 275 per head	116,325
4,497 pigs at Rs 90 per head	404,730
2,887 sheep and goats at Rs 40 per head ...	115,480
638 crates fowls at Rs 174 per crate	111,012
622 tons onions at Rs 500 per ton	311,000
22 tons Garlic at Rs 1,100	24,200
3,130 bales Salt fish and Octopus at Rs 140 per bale	438,200
Total ...	1,520,947

589. The following table compares the total exports as from 1960.

	1960	*1961*	*1962*	*1963*	*1964*	*1965*	*1966*	*1967*	*1968*
Cattle	615	720	1,076	579	616	631	402	288	423
Sheep & Goat ...	6,135	5,654	5,963	5,745	5,056	4,324	4,649	4,230	2,887
Poultry crates ...	728	650	636	706	550	861	1,379	1,302	638
Pigs	2,908	2,258	2,858	3,542	4,656	4,576	4,428	5,141	4,497
Onions Garlic (tons) ...	258	150	51½	286	578	524	755	670	644
Acacia (tons) ...	235	75	38	130	81	79	14	10	—
Salt Fish & Octopus (bales) ...	4,187	3,540	4,370	4,105	4,287	3,847	3,873	4,591	3,130
TOTAL ...	1,497,570	1,247,480	1,315,820	1,538,314	1,720,775	1,692,734	1,830,458	1,922,638	1,520,947

The total value of the exports for 1968 reflects the effects of the cyclones on the island's economy but was not too bad as compared with the past few years. There was a marked decrease in the export of sheep, goats and poultry. The lime export which amounted to 439,875 unit in 1967 was nil.

Animal Statistics

Cattle

Station	*Adults*		*Young*		*Total*
	Male	*Female*	*Male*	*Female*	
Oyster Bay	1	22	9	24	56
Malabar	1	44	2	7	54
Le Chou	2	27	3	13	45
St. Gabriel	1	42	9	30	82
Marechal	2	46	12	15	75
Baie Topaze	1	31	9	18	59
Demonstration plots ...	2	38	7	66	113
Total ...	10	250	51	173	484

587. There were 152 calvings producing 65 male and 87 females calves. Sales to farmers were 33 cows and 51 bullocks.

Pigs

Station	*Adults*		*Young*		*Total*
	Male	*Female*	*Male*	*Female*	
Oyster Bay	6	14	22	21	63
St. Gabriel	2	16	26	9	53
Le Chou	2	11	3	3	19
Marechal	3	22	12	4	41
Baie Topaze	3	12	8	18	41
Demonstration plots ...	12	18	19	12	61
Total ...	28	93	90	67	278

588. There were 117 farrowing producing 875 piglets or 7.5 per litter with a 83.2% survival to weaning. 648 piglets were sold to farmers.

Sheep

Station	*Adults*		*Young*		*Total*
	Male	*Female*	*Male*	*Female*	
Gombrani	1	12	7	3	23
Ile-aux-crabes ...	22	51	9	6	88
Total ...	23	63	16	9	101

589. 82 lambs were born. 22 rams and 2 ewe lambs were sold to farmers as breeding stock.

XXV. Lesser Dependencies

590. Three principal groups of islands were concerned, namely Peros of 2,900 arpents, Salomon of 2,000 arpents and Agalega of 6,000 arpents. The islands produce copra.

XXVI. Land and Water Resources Survey

591. Good progress was made with the land and water resources survey by a team of Food and Agriculture Organization experts on behalf of the United Nations Development Programme. The project has been working to schedule, which was upset by the death of the Project Manager while on leave on 21st June, 1968. This delayed the preparation of certain volumes of the final report of the Project.

592. A detailed investigation was made of the existing irrigation supply and distribution systems and present water use in the Northern Plains area for planning an integration of new and existing supplies.

593. Field work and mapping were continued in connection with the survey of the ground water resources of the island. A land use map at 1 : 100,000 was completed.

594. Hydrologic investigations and studies of existing water use were initiated in the Western Coastal Region in anticipation of the forthcoming feasibility study for that area. This region involves about 17,000 acres, including 5,000 acres of undeveloped land.

955. Phase II of the Project was started on 1st May, 1968. Work under the new project was to be principally feasibility studies of irrigation schemes which have been identified in the Northern Plains and the Western Coastal Region.

APPENDICES

A. Staff

(as at 31st December 1968)

Appointment	*Name*	*Remarks*
Chief Agricultural Officer	A. Mulder ...	... On contract
Principal Agricultural Officers (2)	B. D. Roy, B.Sc. (Wales) Diploma Agric. (Mtius.)	
	A. Darné, F.R.C.V.S., Diploma Agric. (Mtius.)	On pre-retirement leave

ADMINISTRATIVE AND FINANCE DIVISIONS

Chief Finance Officer ...	G. Dhookit ...	... Acting
Chief Executive Officer...	J. L. Mélotte	

In addition there are :—

3 Senior Executive Officers	2 vacancies
6 Executive Officers	
2 Higher Clerical Officers	
15 Clerical Officers	... 2 vacancies
1 Senior Stores Officer 1 Assistant Stores Officer	Posted to the Agricultural Services and paid out of the M/Finance Vote
3 Stores Assistants	
2 Confidential Assistants	
10 Typists Stenographers	... 1 vacant
1 Telephone Attendant	
1 Senior Messenger	... Vacant
6 Messengers	

AGRICULTURAL AND EXTENSION DIVISIONS

Senior Agricultural Officers (3)	K. Lutchmeenaraidoo, B.Sc. Agric. (Reading) Diploma Agric. (Mtius.)	Acting as Principal Agricultural Officer 2 Vacancies
Hydrometeorologist ...	K. Venkatasamy, B.Sc. (Honours) Physics (Manchester)	
Agronomists (4) ...	T. Narain, B.Sc. Agric. (Reading) Diploma Agric. (Mtius.)	
	L. R. Brunet, B.Sc. Agric. (Reading) Diploma Agric. (Mtius.)	
	P. Ramdin, B.Sc. (Honours) Agriculture & Animal Husbandry (Uttar Pradesh)	
	Mr. A. L. Owadally, B.Sc. (Honours) Agric. Botany (Wales) Ph.D. Agric. (Nottingham), Diploma Agric. (Mtius.)	

Appointment	*Name*	*Remarks*
Horticulturist	... M.Z. Peerun, B.Sc. (General), B.Sc. (Honours) Agric. Botany (Wales).	
Agricultural Officers (10)	I. Fakim, Diploma Agric. (Mtius.)	
	M. Sooltangos, Diploma Agric. (Mtius)	
	H. Choolun, Diploma Agric. (Mtius)	
	S. Bagwant	
	D. Reetoo	
	B. Nundloll	
	S. Y. Elahee Doomun	
	S. P. Vythilingum, Diploma Agric. (Mtius.)	
	J. C. Carmagnole, Diploma Agric. (Mtius.)	
	P.G.C.F. Choo Fooo, Diploma Agric. (Mtius.)	

In addition there are :—

17 Assistant Agricultural Officers		12 vacancies
16 Overseers ...	...	3 vacancies
8 Agricultural Assistants	...	5 vacancies
8 Agricultural Cadets	...	5 vacancies

AGRICULTURAL CHEMISTRY DIVISION

Chemist ...	... S. Belcour, B.Sc. Agric. Chem. (Wales), Post Graduate Diploma Agric., Science (Wales) Diploma Agric. (Mtius).	
Assistant Chemist (2)	... J. Pablot, B.Sc. (London)	
	J.P.J. Deville, B.Sc. (Honours) Biochemistry & Soil Science (Wales)	

In addition there are:—

3 Scientific Assistants	...	2 Vacancies (the third one is on study leave)
2 Agricultural Cadets		

PLANT PATHOLOGY DIVISION

Plant Pathologist	... Vacant ...	... (Mr. L. Orieux retired on 22.10.68)
Assistant Plant Pathologist	S. Félix Diploma Agric. (Mtius.)	

In addition there are:—

4 Quarantine Inspectors		
2 Scientific Assistants	...	1 vacancy
1 Agricutural Cadet		

ARBRITATION AND CONTROL BOARD DIVISION

Appointment	*Name*	*Remarks*
Registrar ...	... P.J. Galéa Diploma Agric. (Mtius.)	
Assistant Registrar and Chief Chemist	A.A. Aumeerally, B,S. (Sugar Engineering) B.S. (Chemical Engineering), Diploma Agric. (Mtius.)	
Accountant	... P.J. Guy Gnany, A.A.C.C.A.	
Senior Assistant Chemist	I.D. Nawoor, B.Sc. (General) (Wales) B.Sc. (Honours) Chemistry (Wales)	
Assistant Chemist	... R. Thélémaque, Diploma Agric. (Mtius.)	

In addition there are :—

2 Investigational Officers and Weighbridge Inspectors	
3 Senior Test Chemists	... 2 Vacancies
25 Test Chemists	
1 Test Chemist for Crop period	
30 Samplers for crop period	

ENGINEERING DIVISION

Agricultural Engineers (2)	L. Li Pi Shan, B Sc. Agric. Engineering (Sask.) A. R. Satar, B.Sc. Agric. Engineering (Israel)	
Assistant Agricultural Engineer	M. Morad, Diploma Agric. (Mtius.)	

In addition there are :—

1 Scientific Assistant	... Vacant
1 Supervisor Livestock Feed Factory	
1 Accounts Clerk	
1 Temporary Clerk, Extension Shop	
1 Agricultural Cadet	

ENTOMOLOGY DIVISION

Entomologist	... Vacant	
Assistant Entomologist	J. Monty, Diploma Agric. (Mtius.)	On study leave A. Joomaye, B.Sc. (Hons.) Zoology & Botany (East Africa) appointed temporarily.

In addition there are :—

2 Scientific Assistants	... Vacant
1 Agricultural Cadet	... Vacant

VETERINARY DIVISION

Senior Veterinary Officer	J. U. D. Shuja, M.R.C.V.S.	
Veterinary Officers (2)	... M. F. Mosaheb, B.Sc. (Vet.) B.Sc. (Animal Husbandry) (Punjab)	
	1 Vacancy	

Appointment	*Name*	*Remarks*
Assistant Veterinary Officer	Vacant	
Animal Husbandry Officer	J. A. C. Delaitre, B. Agric & A. H. (N. Z.)	
Laboratory Technologist	Vacant	
Senior Stock Inspectors (2)	R. Pascal	
	1 vacancy	
Agricultural Officers (2)	A. Ferriere	
	Y. Amjaud, Diploma Agric. (Mtius.)	
In addition there are :—		
	2 Scientific Assistants	
	9 Stock Inspectors	... 3 Vacancies
	21 Livestock Assistants	... 4 Vacancies
	3 Agricultural Assistants	... 1 Vacancy
	2 Overseers	
	2 Agricultural Cadets	

TEA DIVISION

Senior Agricultural Officer	Mr. S. Moutia, B.Sc. (Hort.) (London) Diploma (Agric. Economics) (Oxford) D. Phil (Gaubati) City of Guilds (Sugar Manufacture) First Class Cert. (London) Diploma Agric. (Mtius.)	
Agronomists (2)	... L. Moorlee, Diploma Agric. (Mtius.)	
	1 vacancy	
Agricultural Officers (3)	C. S. Amide, Diploma Agric. (Mtius.)	
	2 vacancies	
In addition there are :—		
	9 Assistant Agricultural Officers	6 vacancies
	15 Overseers	... 5 vacancies
	2 Agricultural Assistants	
	6 Agricultural Cadets	... 1 vacancy

FISHERIES DIVISION

Fisheries Officer	... J. D. Ardill, B.Sc. Zoology (St. Andrews), M.Sc. Oceanography (Canada)	
Chief Inspector	... M. A. E. Cabon	
In addition there are :—		
	3 inspectors	
	3 sub-Inspectors	
	16 Head Guards	
	36 Guards	
	1 Clerk and Storekeeper	
	1 Statistical Clerk	

B. Composition of the Principal Boards and Committees

(i) Board of Agriculture, Fisheries and Natural Resources

Ex-Officio Members

The Director of Agriculture—*Chairman*
The Conservator of Forests—*Vice Chairman*
The Deputy Financial Secretary

Members of the Legislative Assembly

The Honourable K. Gokulsing
The Honourable Y. Mahomed
The Honourable R. Rault
The Honourable M. Foogooa

Representatives of Millers

Dr. P. O. Wiehe, C.B.E.
Mr. Serge Dupont de St. Antoine

Representatives of Planters

Mr. Roland Duclerc des Rauches
Mr. Nundlall Gunputh

Representative of the Chamber of Agriculture

Mr. L. H. Garthwaite

There was one meeting of the Board during the year.

(ii) Agricultural College Advisory Board

The Director of Agriculture—*Chairman*

Nominated by His Excellency the Governor

Mr. R. Balgobin
Mrs. B. Jhowry
Dr. P. O. Wiehe, C.B.E.

Nominated by the Chamber of Agriculture

Sir André Nairac, Kt., C.B.E., Q.C.
Mr. Serge Dupont de Rivaltz de St. Antoine.

Nominated by the Société de Technologie Agricole et Sucrière

Mr. Robert Antoine
Mr. Auguste Harel.

Nominated by the Association of former Agricultural Students

Dr. Alfred J. E. Orian.

The Board held one meeting during the year.

(iii) Cane Planters and Millers Arbitration and Control Board

Mr. L. E. Venchard—*Chairman.*

Representatives of Millers

Mr. H. Koenig
Mr. Philippe d'Arifat.

Representatives of Large Planters

Mr. Roland Ducler des Rauches
Mr. Balkrishna Ramphul.

Representatives of Small Planters

Mr. Jugdeosing Chundunsing
Mr. Nunkeesor Saddul.

The Board held 30 meetings during the year.

(iv) Tobacco Board

Ex-Officio Members

The Director of Agriculture or any officer of his Department deputed by him—*Chairman*
The Commissioner of Excise—*Vice-Chairman*
The Accountant General or any officer of his Department deputed by him
The Manager, Tobacco Warehouse.

Members appointed by the Minister

The General Manager of the British American Tobacco Company (Mauritius) Limited or his representative
The Managing Director of the Amalgamated Tobacco Corporation (Mauritius) Limited or his representative
Mr. A. Georges Rey
Mr. Iqbal Roy
Mr. Harrish Balgobin
Mr. Anirood Purgass
Mr. Soomaroo Butan
Mr. Goolam Rashid Sohawon

The Board held 13 meetings during the year.

(v) Land Settlement Advisory Committee

The Director of Agriculture or his representative—*Chairman*
The Senior Agricultural Officer (Extension)
The Registrar, Co-operative Societies
The Honourable K. Gokulsing, M.L.A.
Mr. N. Gunputh
Mr. Sobie Rajcoomar

The Committee held one meeting during the year.

(vi) Tea Control Board

Ex-Officio Members

The Deputy Director of Agriculture—*Chairman*
The Deputy Financial Secretary

Members appointed by the Minister

Mr. H. R. K. Aubdool
Mr. V. Govinden, M. B. E.
Mr. Jean Rey
Mr. Francis North-Coombes
Mr. Seeparsad Dassaram
Mr. Lutchmeeparsad Ramdin
Mr. J. P. Hannay
Pandit Aneerood Baldeo (up to June 1968)
Mr. D. Gungadeen (from August 1968)

The Board held 12 meetings during the year.

(Vii) Sugar Planters' Rehabilitation Fund Committee

Ex-Officio Members (Government Officers)

The Director of Agriculture or his representative—*Chairman*
The Registrar of Co-operative Societies or his representative

Representative of the Mauritius Chamber of Agriculture

Mr. Lois Desvaux de Marigny

Representative of the Sugar Cane Planters' Association

Mr. S. Gaya

Representative of the Mauritius Cane Growers' Association

Mr. Jacques Lagesse

Representatives of the Mauritius Co-operative Agricultural Federation Limited

Mr. Jagdeo Roodurmun
Mr. Soomaroo Butan

The Committee held 17 meetings during the year.

C. Legislation

Proclamation No. 18 of 1968	...	To proclaim the rate of duty leviable under the Sale of Canes (Control) Ordinance, 1964, on the Sugars of the 1967 crop exported from Mauritius.
Proclamation No. 21 of 1968	...	To fix the date of the coming into force of the Ministry of Agriculture and Natural Resources (Integration) Ordinance, 1963 and the Ministry of Agriculture and Natural Resources (Integration) (Amendment) Ordinance, 1967.

Proclamation No. 27 of 1968 ..	To authorize the use of large nets and canard nets for fishing during the period extending from the 1st October 1968 to the 28th February, 1969.
Ordinance No. 1 of 1968	The Game (Amendment) Ordinance, 1968—Further to amend the Game Ordinance.
Act No. 4 of 1968	The Mauritius Agricultural Marketing (Amendment) Act, 1968.—Further to amend the Mauritius Agricultural Marketing Ordinance, 1963.
Government Notice No. 37 of 1968 ...	Delegation of Authority by the Governor to the Minister of Agriculture and Natural Resources re. Registration of Agriculture Chemists Regulations 1946.
Government Notice No. 72 of 1968 ...	Civil Establishment (General) Amendment No. 67 Order, 1968.
Government Notice No. 95 of 1968 ...	Mauritius Agricultural Marketing (Standard of Quanlity and Classification) Regulations 1968.
Government Notice No. 96 of 1968 ...	The Mauritius Agricultural Marketing (Prices and Quantities) Order 1968.
Government Notice No. 156 of 1968 ...	The Mauritius Agricultural Marketing (Cess) (Amendment) Regulations 1968.
Government Notice No. 157 of 1968 ...	The Mauritius Agricultural Marketing (Prices and Quantities) (Amendment) Order 1968.
Government Notice No. 171 of 1968 ...	Delegation of authority by the Governor to the Minister of Agriculture and Natural Resources re. The Mauritius Sugar Industry Research Institute Ordinance 1953.
Government Notice No. 189 of 1968 ...	The Civil Establishment (General Amendment No. 68) Order 1968.

D. List of Publications and Contributions to Literature by Officers of the Department of Agriculture during, 1968

Name of Author	*Title of paper*	*Name, Volume No. Page Nos. of periodical in which published*
S. Félix	Occurrence of Pink Rot disease of onions *Pyrenochaeta terrestris* (Hansen) Gorenz, Walker and Larson in Mauritius	Revue Agricole et Sucriere de l'Ile Maurice, Vol. 47 No. 1 pages 26–28
K. Lutchmeenaraidoo ...	Varietal composition of small planters' sugarcane production in relation to gumming disease control	Revue Agricole et Sucriere de l'Ile Maurice, Vol 47 No. 1 pages 37–42
T. M. Naraiu ...	History of the Begami variety of rice in Mauritius	Revue Agricole et Sucriere de l'Ile Maurice, Vol. 47 No. 2 pages 129–131
B. D. Roy	A visit to some plantation crops in Queensland, Australia	Revue Agricole et Sucriere de l'Ile Maurice Vol. 47 No. 2 pages 132–138
S. Félix and L. Orieux ...	Situation phytosanitaire des cultures vivrieres et maraicheres pendant les vingt dernieres annees a Maurice, progres realisés, ce qui reste a accomplir	Revue Agricole et Sucriere de l'Ile Maurice, Vol. 47 No. 4 pages 261–273
S. Moutia and M.V.M. Herchenroder	La production de thé a Maurice et sa commercialisation	Revue Agricole et Sucriere de l'Ile Maurice, Vol. 47 No. 4 pages 274–278

E. Richelieu Livestock Feed Factory

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR ENDED 30TH JUNE, 1968

EXPENDITURE	Rs c	Rs c
Stock of Materials on 1.7.1967		
Raw Materials ...	726,068.03	
Manufactured Feeds	15,040.00	
Aloe Bags ..	23,308.75	
		[illegible]
Less materials received in 1966–67 but paid in 1967–68 ..		14,000.76
		[illegible]
Purchases of Raw Materials :—		
Maize ...	682,830.80	
[illegible]	[illegible]	
[illegible] ...	[illegible]	
Cotton Seed Cakes	179,806.80	
[illegible]	[illegible]	
Meat Meal	58,[illegible].51	
Salt ...	4,[illegible].00	
[illegible]	[illegible]	
Copra Cakes .	42,143.40	
[illegible]	[illegible]	
Bone Meal	28,035.80	
[illegible]	[illegible]	
Breedmix ..	12,152.29	
Wheaten Flour	4,215.00	
[illegible]	[illegible]	
Antibiotics	825.60	
[illegible]	[illegible]	
Diesel Oil ...	10,717.00	
Aloe Bags	97,646.00	
		1,806,458.36
Raw Materials received in 1967–68 but not paid (Maize)		217.44
Other Expenses		
Wages	123,495.74	
[illegible]	[illegible]	
Others Expenses	203.62	
[illegible]	[illegible]	
[illegible]	[illegible]	
Maintenance of Machinery and Lorries ...	27,558.48	
Miscellaneous	[illegible]	
Rent of Extension Shop	2,400.00	
		179,757.46
		[illegible]

REVENUE	Rs c	Rs c
Sale of Feeds		2,121,476.53
Stock of Materials on 30.6.68 :		
Raw Materials	338,440.75	
[illegible]	[illegible]	
Aloe Bags	25,901.75	
		379,104.61
Value of Maize on loan to Rodrigues		[illegible]
[illegible]		
Materials paid in 1967–68 but received in 1968–69		[illegible]
[illegible]		
Operating Loss		117,389.27
		[illegible]

NOTE —(i) Fair valuation of free materials received during the financial year Rs 100,000
(ii) Fair valuation of free materials remaining in stock as at 30.6.68 Rs 44,000.

F. Animal Health Laboratory

PATHOLOGICAL CONDITIONS DIAGNOSED IN POULTRY SUBMITTED BY BREEDERS—1968

	January	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Total*
Respiratory Disease ...	3	1	7	1	3	2	24	31	14	34	35	13	168
Worm Infestation ...	4	1	1	4	1	1	2	1	3	5	7	2	29
Vitamin A Deficiency ...	—	—	2	—	1	—	1	1	3	1	—	—	8
Vitamin B Deficiency ...	—	—	4	—	—	—	—	—	—	—	1	12	17
Rickets	—	—	—	—	1	2	2	4	4	5	11	—	29
Nephritis	—	—	—	—	—	—	1	—	—	1	—	—	2
Coccidiosis	7	3	1	5	12	2	10	13	5	23	12	11	104
Aspergillosis	—	—	—	—	—	1	3	—	—	1	1	—	9
Encephalomyelitis ...	—	—	—	—	—	—	—	—	—	—	—	5	5
Leucosis	4	3	5	3	6	4	2	7	8	3	5	8	58
Cannibalism	2	—	—	—	—	1	1	2	—	—	1	—	7
C.R.D.	1	—	1	—	—	2	—	2	—	3	1	—	10
Unabsorbed York ...	—	5	5	—	5	16	62	168	165	47	2	10	485
Enteritis	3	—	—	—	1	2	1	—	—	3	1	1	17
Peritonitis	—	—	—	1	—	1	5	6	7	—	5	2	28
Blackhead	—	—	—	—	—	—	—	—	1	—	—	1	2
Sour Crop (moniliasis) ...	1	—	—	1	2	—	—	—	—	2	1	—	7
Newcastle Disease ...	3	5	2	—	—	—	1	1	—	—	—	2	14
Coryza	1	—	—	—	—	—	—	—	—	—	—	—	1
Fowl Pox	—	—	—	—	—	—	—	—	5	—	4	—	9
Trichomonas	—	—	—	2	—	—	—	—	—	—	—	—	2
E. coli	—	—	—	—	—	—	1	1	—	—	1	—	3
Septicaemia	—	—	—	—	—	—	—	—	—	—	—	—	—
Anaemia	—	—	—	—	—	—	—	—	—	10	2	2	14
Perosis	1	2	1	—	—	—	1	—	—	—	—	—	5
Vitamin Deficiency ...	—	—	—	—	—	—	—	—	—	1	—	—	1
Trauma	—	—	—	—	—	1	—	1	1	1	2	—	6
Phosphorus Poisoning ...	—	—	—	—	—	—	—	—	—	—	—	1	1
Miscellaneous	1	1	2	2	2	4	2	1	4	2	4	2	27
	31	21	31	19	34	39	119	238	220	142	96	78	1,068

PATHOLOGICAL CONDITIONS DIAGNOSED IN SPECIMENS SUBMITTED BY POULTRY BREEDING CENTRE—REDUIT—1968

	January	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Total*
Respiratory Disease	23	5	—	4	6	7	5	14	8	16	5	1	94
Worm Infestation	—	—	1	—	—	1	—	—	—	—	—	1	3
Vitamin A Deficiency ...	—	—	—	—	—	—	—	—	—	—	—	—	—
Vitamin B Deficiency ...	—	—	—	—	—	—	—	—	—	—	6	2	8
Rickets	3	—	—	—	—	4	2	10	16	8	—	—	43
Nephritis	—	—	—	—	—	—	—	—	—	—	—	—	—
Coccidiosis	2	—	—	—	—	—	1	2	1	2	1	1	10
Aspergillosis	1	—	—	—	—	—	—	1	—	—	—	—	2
Ancephalomyelitis	3	—	—	—	—	—	—	—	—	—	—	—	3
Leucosis	6	1	—	15	13	5	8	7	9	3	3	—	70
Cannibalism	—	—	—	—	1	—	1	—	—	—	2	—	4
C. R. D.	1	1	4	2	3	4	—	1	—	1	—	—	17
Unabsorbed Yolk	11	—	—	—	15	4	23	18	7	6	10	—	94
Enteritis	—	—	—	1	—	1	—	—	—	1	—	—	3
Peritonitis	2	1	2	5	7	2	6	8	12	6	2	—	53
Black head	—	—	—	—	1	—	—	—	—	—	—	—	1
Sour Crop (moniliasis) ...	—	—	—	1	—	1	—	1	—	2	—	—	5
Newcastle Disease	1	4	—	—	—	—	—	—	—	—	—	—	5
Coryza	—	—	—	—	—	—	—	—	—	—	—	—	—
Fowl Pox	—	—	—	—	—	—	—	—	3	—	—	—	3
Perosis	1	—	—	—	—	6	—	—	—	2	—	—	9
Trauma E. coli	4	1	—	—	2	1	3	3	1	—	1	—	16
Septocaemia	—	—	—	—	—	—	—	—	—	1	2	—	3
Depluming Mite Infestation ...	6	—	—	—	—	—	—	1	—	—	—	—	7
Lice Infestation	—	—	—	—	—	—	—	1	—	—	—	—	1
Miscellaneous	7	—	—	4	7	10	7	7	9	6	1	—	58
	71	13	7	32	55	46	56	74	66	54	33	5	512

G. Conversion Table

1 Arpent	... ...	1.043 acres
1 Gaulette	... ...	10.61 feet
1 Metric Ton	... ...	1,000 kilos
1 Long Ton	... ...	1,016 kilos
1 Pound avoirdupois	...	454 grms
1 Kilo	... ...	1,000 grms
1 Hundredweight	...	50.803 kilos
1 Cord	... ...	92.82 Cubic feet
1 Imperial Gallon	...	4.54 litres
1 Rupee	... ...	1/6 Sterling

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